A CLINICAL STUDY ON KUMBA VATHAM (PERIARTHRITIS) WITH MUKKIRATTAI CHOORANAM

Dissertation submitted to

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DEPARTMENT OF POTHU MARUTHUVAM

GOVERNMENT SIDDHA MEDICAL COLLEGE

PALAYAMKOTTAI-627 002

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GOVERNMENT SIDDHA MEDICAL COLLEGE
PALAYAMKOTTAI, TIRUNELVELI - 627 002,
TAMIL NADU, INDIA.
Ph:0462-2572736/2572737 Fax: 0462 – 2582010
gsmc.palayamkottai@gmail.com

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This is to certify that the dissertation entitled "**A CLINICAL STUDY ON KUMBA VATHAM (PERIARTHRITIS) WITH MUKKIRATTAI CHOORANAM**" by the clinical trial drug **MUKKIRATTAI CHOORANAM** is a bonafide work done by **Dr. A. ROSHINI (Reg. No.321311006)** Govt. Siddha Medical College, Palayamkotai in partial fulfilment of the university rules and regulations for award for **M.D.(S)., POTHU MARUTHUVAM** under my guidance and supervision during the academic **year 2013-2016.**

Signature of the Guide
Dr. A.MANOHARAN, M.D. (S).,
HOD, Dept. of Pothu Maruthuvam,
Govt. Siddha Medical College,
Palayamkottai.

Name and signature of the HOD
Dr. A.MANOHARAN, M.D. (S).,
HOD, Dept. of Pothu maruthuvam,
Govt. Siddha Medical College,
Palayamkottai.

Name and signature of the Principal
Dr. S.VICTORIA, M.D.(S).,
Govt. Siddha Medical College,
Palayamkottai.

GOVERNMENT SIDDHA MEDICAL COLLEGE
PALAYAMKOTTAI, TIRUNELVELI - 627 002,
TAMIL NADU, INDIA.
Ph:0462-2572736/2572737 Fax: 0462 – 2582010
gsmc.palayamkottai@gmail.com

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Certified that I have gone through the dissertation entitled "**A CLINICAL STUDY ON KUMBA VATHAM (PERIARTHRITIS) WITH MUKKIRATTAI CHOORANAM** submitted by **Dr. A. ROSHINI (Reg. No.321311006) a student of final year M.D.(S)., Branch-I, Department of Pothu Maruthuvam** of this college and the dissertation work has been carried out by the individual only. This dissertation does not represent or reproduce the dissertation submitted and approved earlier.

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#69, Anna salai, Guindy, Chennai-600 032.

This certificate is awarded to

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H.O.D of P.G. Pothumaruthuvam
Government Siddha Medical College, Palayamkottai

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Principal,
Government Siddha Medical College, Palayamkottai

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Department: POTHU MARUTHUVAM

This is to certify that the dissertation topic KUMBAVATHAM WITH MUKKIRATTAI CHOORANAM has been approved by the screening committee.

Branch	Department	Name	Signature
1	Pothu Maruthuvam	Dr.S.Aathi Narayanan MD(S).,	
2	Gunapadam	Dr.M.Ravi Chandran MD(S).Ph.D	
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6	Naju Nool Maruthuvam	Dr.M.Thiruthani MD(S).,	

Remarks:

INSTITUTIONAL ETHICAL COMMITTEE,

GOVERNMENT SIDDHA MEDICAL COLLEGE,PALAYAMKOTTAI,

TIRUNELVELI - 627002,

TAMILNADU, INDIA.

Ph:0462-2572736/2572737/2582010 Fax:0462-2582010

F.No.GSMC/5676/P&D/Res/IEC/2014 Date: 16.07.2015

CERTIFICATE OF APPROVAL

Address of EthicalCommittee	Government Siddha Medical College, Palayamkottai,Tirunelveli, Tamil Nadu, India. Pincode: 627002.
Principal Investigator	Dr.A.Roshini, MD(s) - IIYear, Department of PG PothuMaruthuvam, Reg.No.: 321311006.
Guide	Dr. S.Athi Narayanan, MD(s), H.O.D, Department of PothuMaruthuvam, Govt. Siddha Medical College and Hospital,Palayamkottai,Tirunelveli District. Dr. A.Manoharan, MD(s), Reader, Department of PothuMaruthuvam, Govt. Siddha Medical College and Hospital, Palayamkottai, Tirunelveli District. Dr. S.Justus Antony, MD(s), Asst.Lecturer, Department of PothuMaruthuvam, Govt. Siddha Medical College and Hospital, Palayamkottai, Tirunelveli District.
Dissertation Topic	A Clinical Study on "**Kumbavatham**"with evaluation of trial drug "**Mukkirattai Chooranam**"
Documents Filed	1) Protocol 2) Data Collection Forms 3)Patient Information Sheet 4) Consent Form
Clinical / Non ClinicalTrial Protocol	Clinical Trial Protocol
Informed Consent Document	Yes
Any other Documents	Case Sheet,Investigation Documents
Date of IEC Approval & its Number	GSMC-II-IEC/2015-Br.-I/06/16.07.2015

We approve the trial to be conducted in its presented form.

The Institutional Ethical Committee expects to be informed about the process report to be submitted to the IEC atleast annually of the study, any changes in the protocol and submission of final report.

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(Prof.Dr.M.Logamanian)

16/7/15

Member Secretary
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Certificate of Botanical Authenticity

Certified the following plant drug used in Siddha formulation Mukkirattai Chooranam (Internal) for the management of Kumba vatham (Periarthritis in shoulder) taken up for Post Graduation Dissertation Studies by Dr.A.Roshini (Reg No.321311006) PG Dept, of Pothu Maruthuvam are correctly identified and authenticated through Visual inspection / Organoleptic Characters / Experience, Education & Training Morphology Microscopical and Taxonomical methods.

S.N	Name	Botanical Name	Family	Parts Used
1.	Mukkirattai	*Boerhavia diffusa*	Nyctaginaceae	Dried Leaves

Station: Palayamkottai

Date: 22/11/15

22/11/15

Authorized Signature

Dr. S. SUTHA, M.Sc.,M.Ed.,Ph.D.,
Associate Professor
Dept. of Medicinal Botany
Govt. Siddha Medical College
Palayamkottai, Tirunelveli - 2.

DEPARTMENT OF PHARMACOLOGY
INSTITUTIONAL ANIMAL ETHICAL COMMITTEE
CENTRAL ANIMAL HOUSE REGISTRATION NUMBER: 265/2000/CPCSEA

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Name of IAEC/CPCSEA Chairperson	: The Head, Department of Pharmacology Periyar College of Pharmaceutical Sciences Trichy – 21.

Date : 26.12.2015

K.A.S. MOHAMMED SHAFEEQ, M.Pharm.,
ASST. PROFESSOR
Periyar College of Pharmaceutical Sciences
TRICHY - 21.

Institutional Animal Ethics Committe
Periyar College of Pharmaceutical Sciences
TRICHY - 21.

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ABSTRACT

Kumba Vatham is one of the Vatha disease described in Yugi Vaithiya Chindamani 800.

This disease is correlated with periarthritis which is mentioned in medicine.

The disease is diagnosed by using Siddha parameters like “Envagai Thervugal, Kaalam, Thinai, Mukkutra Verupadugal and modern parameters like laboratory and radiological investigations.

20 patients of either sex has been selected, both as In patients and Out patients and they were administrated with the clinical trial drug.

Mukkirattai Chooranam – 2gm twice a day with hot water for 30 days.

The trial drug is subjected to biochemical and pharamacological analysis. At the end of the trial study majority of cases showed good clinical improvement.

LIST OF ABBREVIATIONS

%	-	Percentage
i.e.,	-	That is
RA	-	Rheumatoid Arthritis
ESR	-	Erythrocyte Sedimentation Rate
ECG	-	Electro cardiogram
gms	-	Grams
kg	-	Kilogram
mg	-	Milligram
dl	-	Decilitre
ml	-	Milli litre
cm	-	Centimeter
S E M	-	Structural Equation Modelling
ANOVA	-	Analysis Of Variance
Hb	-	Haemoglobin
TC	-	Total Count
MCV	-	Mean Corpuscular Volume
DC	-	Differential Count
MCHC	-	Mean Corpuscular Haemolgobin Concentration
P	-	Polymorphs
L	-	Lymphocytes
E	-	Eosinophils
WBC	-	White Blood Corpuscles
RBC	-	Red Blood Corpuscles
Ref	-	Reference
CT	-	Computerized Tomography
MRI	-	Magnetic Resonance and Imaging
JVP	-	Jugular Venous Pulsation
Bid	-	Twice a day

CHAPTER-I
INTRODUCTION

"கற்ற குருவாக்குங் காதலித்த வாகடமும்
பற்றுக் கோலொன்றே பரிகாரம் - முற்ற
அவன் பொறுப்பல்லா லொன்றுமாவதில்லை
யென்றே இவனுணரக் கீர்த்தி அங்கு"

Siddha system of medicine is the oldest system of medicine in India. It is of Dravidian origin and has it entire literatures in Tamil language. Its origin is also traced to mythological sources belonging to the shaivam. According to the tradition, Lord Shiva conveyed the knowledge of medicine to his wife Parvathi.

The knowledge was passed from her to Nandhi and finally it was given to the Siddhars.

This world and universe around it are made up of five basic elements (Panchaboothams) namely earth, water, fire, air and space. More over, panchabootham constitutes the arusuvaigal. So changes in the arusuvaigal may influences the diseases of the human body. These five elements combine to form three humours (Vatham, Pitham, Kapham). According to Siddha, the human body composes of 96 thathuvam whose balance is very essential for the healthy human life.

"அண்டத்திலுள்ளதே பிண்டம்
பிண்டத்திலுள்ளதே அண்டம்
அண்டமும், பிண்டமும் ஒன்றே
அறிந்து தான் பார்க்கும் போதே"

In the normal human body all these three are in the homeostasis and exist in the ratio 1:1/2:1/4. Disharmony of this homeostasis may produce disease and called astrithudam as tridhosam. The three thathus are formed by the following way:

Vatham	→	Abanan + Idakalai
Pitham	→	Pranan + Pinkalai
Kapham	→	Samanan + Suzhumunai

So, panchabootham, arusuvaigal, trithathus and human body are interrelated with each other so dishormany in any of the above may produce the disease.

More over mind influences the formation of many disease. Now-a-days there is to more stress and strain. So Siddhars has already advised to treat the body as well as the mind.

Vatha disease were classified into 10 types.

Kumba Vatham is one among the Vatha disease. It is correlated with periarthritis in modern medicine. The advantage and unique features of Siddha medicine is the removal of the root causes of the disease and effective, perfect remedy for mind and soul. They have enumerated many ways that are to be followed to maintain the body without being affected by any disease, to maintain sound mind and to have disease free life are called **"MARUNTHU".**

Medicine can be defined as that which removes distress and leads an individual to perfect happiness (heavenly bliss). Siddhars have utilized herbs, metals, minerals, mercury, red oxide, alkalis, acid and poisons.

It states that,

"வேர் பாரு தழைபாரு மிஞ்சினக்கால் மெல்ல மெல்ல
பற்ப செந்தூரம் பாரே"

Ref: அகத்தியர் வைத்தியம் எண்பது பதினெண் சித்தர் பாடிய சில்லரைக் கோவை.

First initiate the medication with roots and leafs of the herbs then later on use parpam and chendoorams. They have developed their particular way of diagnosing the disease by Envagai Thervugal.

So this study of ancient Siddha's concept of Kumba Vatham and it's treatment with herbal preparation is taken up for the detailed study in preparing this dissertation.

I have tried to formulate the methodology to treat this disease very carefully, to help the sufferers of Kumba Vatham in giving new modality of treatment.

CHAPTER-II

AIM AND OBJECTIVES

Vatha diseases cripples many people from attending their daily routine work. As we are people belonging to medical world, we are very much worried about their health conditions.

So far a perfect and complete remedy for this diseases has not been arrived at. The purpose of the author is to elucidate a good medicine from ancient Siddha literatures and to create hope and faith in their treatment. The drug which is prepared for the diseases 'Kumba Vatham' is economically beneficial for all levels of people. It is so effective when compared with other system of medicines.

The open labelled randomized clinical trial drug is,

MUKKIRATTAI CHOORANAM (internal medicine)

Ref: **Gunapadam Mooligai Mudhal Vagupu (Page No.780)**

OBJECTIVE

i. To study the clinical course of the disease Kumba Vatham with keen observation on the aetiology, pathology, diagnosis, prognosis, complications by making use of siddha concept.
ii. To expose the unique diagnostic methods mentioned by Siddha text.
iii. To know the disease Kumba Vatham alters the normal conditions under the topic of Mukkutram, Poripulangal, 7 Udal kattukal and Envagai Thervugal.
iv. To know the extent of correlation of aetiology, classification, signs and symptoms of Kumba Vatham in Siddha aspect with 'Periarthritis' in modern medical science.
v. To have an idea about the incidence of the disease with age, sex, socio-economic status, habit, family history and climatic conditions.
vi. To study the effects of trial drugs for various stages of Kumba Vatham.
vii. To evaluate the bio-chemical and pharmacological effects of the trial clinical medicine.
viii. To have a plan for further extensive studies on this disease.

CHAPTER-III
REVIEW OF LITERATURES

a) SIDDHA ASPECTS

There are 4448 diseases mentioned in Siddha system of medicine. Special attention have been given to these thiridhosam and there is a general assumption, that there are 80 Vatha diseases, 40 Pitha diseases and 20 Kapham diseases.

"என்னவே வாதமது எண்பதாகும்"

- யூகி வைத்திய சிந்தாமணி-800

and Kumba Vatham is one of the variety of Vatha disease.

Among three vital humours, Vatham is placed as chief factor (as king) to be affected and leads derangement of other two factors named as Pitham and Kapham and they initiate the diseases.

"வாதமல்லாது மேனி கெடாது"

This verse denotes Vatha is the root cause to bodly affliction.

"ஒழுங்குடன் ததேழ் மூச்சோங்கி இயங்க
எழுச்சி பெற எப்பணியுமாற்ற எழுந்திரிய
வேகம் புலன்களுக்கு மேவச் சுறுசுறுப்பு
வாகளிக்கும் மாந்தர்க்கு வாயு"

- மருத்துவ தனிப்பாடல்

Function of Vayu / Vatham is mentioned in the above poem, as it provides functional energy and briskness to physical, mental and special senses for human.

Though the three basic vital humours are the structural component of whole body they have their own seats in the body as it is dominant in such places. The poem below says the particular regions mostly influenced by Vatha.

"உண்டி சமைத்துடற் கூட்டுங்குடற்பகுதி
திண்டிற லெண்பு செவிகுறங்கு - விண்ட
தொடுவுணர்வு தோற்றுவிக்கும் - தோலிடுப்பில் வாறும்

வடுவிலிடமாம் வளிக்கு”

- மருத்துவ தனிப்பாடல்

Accordingly Vatham is originally placed in intestine, bone, thigh, skin, nervous system, joints and muscles etc., so derangement of Vatha produces pathological conditions such as,

- Body pain & various type of pain – **உடல் நோதல், குத்தல், பிளத்தல்**
- Weakness of nervous function – **நரம்பு குன்றல்**
- Tremor – **நடுக்கம்**
- Rigidity - **இறுக்கமாதல்**
- Dryness of fluids – **நீர்ப்பசையின்மை** (Including Synovial fluid)
- Subluxation – **கைகால் இடம் விட்டுப் பெயரல்**
- Weakness of organs or functional units – **உறுப்புத் தளர்ச்சி**
- Stiffness or numbness – **உறுப்புக்கள் தொழிலற்று மரம்போல் கிடத்தல்**
- Constipation, oliguria – **மலம், சிறுநீர் தீய்தல்**
- Bony pain – **எலும்புக்குள் துளைப்பது போன்ற உணர்ச்சி**
- Loss of function of extermities – **கைகால் மடக்கவும், நீட்டவும் முடியாதபடி செய்தல்.**
- Perverted taste and excessive salivation – **எச்சுவையும் துவர்ப்பாய் இருத்தல் அல்லது துவர்ப்பாய் வாய் நீரூறுதல்**

According to Siddha system, human is composed of 96 Thathuvangal as said earlier, they can be identified as physiological elements. Among them, physiological activities of the body are regulated by the three vital elements (or) humours and udal thathus. The three humours other wise called Uyir thathukkal (or) Thirithathukkal- Vatham, Pitham and Kapham.

“மிகினும் குறையினும் நோய் செய்யும் நூலோர்
வனிமுதலா எண்ணிய மூன்று”

- திருக்குறள்

Udal thathus are:

- Saaram - Lymph
- Senneer - Blood
- Oon - Muscle

- Kozhupu - Fat
- Enbu - Bone
- Moolai - Bone marrow
- Sukkilam / Suronitham - Sperm and Ova.

VATHAM:

Synonym: Vayu, Arasan, Air

Definition:

Vatham (or) Vayu is not mere a wind, but it is that which causes motion, energy and sensation of every cell in the body. So, Vatham is a humour which is responsible for constructive nature of works in the human body.

Genesis of Vatha:

Vatham = vali + aagayam

Vali bootham and aagaya bootham are combined to form Vatham.

Genesis of vatha naadi:

During respiration abana vayu is combined with idakalai naadi. Thus the Vatha humour is generated physiologically.

Vatha naadi = idakalai + abana vayu

Aetiology of Vatha diseases:

The common etiological factor for all types of Vatha diseases including "Kumba Vatham" have been described generally in Yugi Vaidhya Chinthamani-800, Agasthiyar Kanma Kaandam-300 and Agasthiyar Gunavagadam.

It is essential to know the disease, cause for the disease, also the nature of the patient, the degree of the illness, season and also the time of occurrence of the disease before treating the patient. This must to be considered.

In Yugi Vaidhya Chinthamani – 800:

"என்னவே வாதந்தானெண்பதாகும்
இகத்திலே மனிதர்களுக் கெய்துமாறு
பின்னவே பொன்தனையே சோரஞ்செய்து
பெரியோர்கள் பிராமணைரைத் தூஷனித்தும்
வன்ன வேவச் சொத்திற் சோரஞ் செய்து
மாதா பிதா குருவை மறந்த பேர்க்கும்
கன்னவே வேதத்தை நிந்தை செய்த பேர்க்குங்
காயத்திற் கலந்திடுமே வாதந்தானே"

- Breach of trust.
- Abusing the holy man.
- Exploiting of the properties of charities.
- Ingratitude towards mother, father and teachers and abusing holy.
- Intake of food with bitter, astringent and pungent taste foods.
- Intake of spoiled food.
- Drinking of polluted rain water.
- Day sleep.
- Lifting over weight.
- Excessive lust.
- Disregarding the divinity.
- Refusing food for clestitudes and sanyasingal.
- Disregarding the advice of preceptors.
- Involving in murdering, stealing, speaking lie.
- Indulging in sexual act during vititation of Vatha.
- Walking for a long distance.
- Exposure to dampness, cold-eating.
- Taking excessive curd immediately after eating vegetables and fruits causes toxic factors which affect bones and muscles.

In Agasthiyar Kanma Kaandam – 300

"நூலென்ற வாதம் வந்த வகைதானேது
துண்மையாய்க் கன்மத்தின் வகையைக் கேளு
காலிலே தோன்றியது கடுப்பதேது

கைகாலில் முழக்கியது வீக்கமது
கோலிலே படுகின்ற விருட்சமான
குழந்தை மரந்தனை வெட்டல் மேல்தோல்சீவல்
நூலிலே சீவஜந்து கால் முறித்தல்
நல்லகொம்பு தழைமுறித்தல் நலித்தல் தானே”

- அகத்தியர் கன்மகாண்டம்
(பாடல் எண்.56, பக்கம் எண்.23)

- Removing the bark of living trees.
- Breaking the legs of living animals.
- Cutting the branches removing leaves.

In Agasthiar Gunavagadam:

“தொல்லை செய்ய இன்றும் வெகு வாத நோய்கள்
தொல்லுலகில் மாந்திருக்குச் காண்பதுண்டு
எல்லையில்லை வாதநோய் நேர்மை தன்மை
இயல்பாக அறிந்திடவே விபரங்கேளே”

“விபரமடா அசதி சன்னி மூளை நோவு
விரிவான மூளையது மிருதுவாகி
அவனிதனில் மூத்திரக் குண்டிக்காய் வியாதியாலும்
தவமுனிவர் தீர்காக்கை மேகரோகம்
தன்மையுள்ள முத்தண்டுக் கொடி வியாதி
அவமிலாப் பரிச நரம்பழுத்தங் கண்டாய்”
“அணுகுமடா மாமிசத்தின் வியாதியாலும்
அப்பனே சூதகத்தின் பெருக்காலும்
குணமில்லா இரசம் வங்கம் தின்னலாலும்
குடிகெடுத்த வாதமது உண்பாமப்பா”

- அகத்தியர் குணவாகடம்

- Brain diseases.
- Renal disorders.
- Sexually transmitted diseases.
- Diseases of the vertebral and spinal cord.
- Menorrhagia.
- Taking improperly prepared medicine of mercury and lead.

Causes according to Astrology:

"கூறுமொன்று மூன்றுடன் குலவு நாலைந்தோழினும்
குற்றமாம் நலத்தினும் கொடூரம் பண்ணிரண்டிலும்
சேரவே புதன் தானுமோ சீரியம்மனை நின்றிழல்
செப்பொனாத தீமையொடு செய்யுபச்சந்தானும்
நெடுந்துக்க மிக்கவாம் நடக்குந்தாது தொழில் தாம்
நிந்தையாகுங் கீல்பிடிப்பு நீடுமெய்யில் தோன்றுமாம்
காரியங்கள் சேமதாங் கல்வயது குறையுமாம்
கண்டுணர்ந்து கணிதவல்லோன் கருத்துடன் செப்பினாரோ"

- மணி மந்திர வைத்திய சேகரம்
Ref: Heritage of the Tamils Siddha medicine

Certain position of planets of certain period of human life will produce keelpidippu and causes sequlare of Vatha vitiation.

All the above causes described from various texts are the major causes for the derangement of Vatham.

CLINICAL FEATURE FOR "KUMBA VATHAM:"

in Yugi Vaithiya Chinthamani,

"நவிலிவே தோண்மீதுங் கரத்தின் மீதும்
நலிந்தமெத்த வாகியே நசவுண் டாகும்
கவிலாவே கன்னமொடு நயனந் தானுங்
கடுத்துமே விறுவிறுப்பு மெரிவுங் காணும்
துவிலிவே துடிப்பாகுங் சிரசு தன்னிற்
சுழற்றியே நாபிக்கீழ் வலியு முண்டாம்
அவிலவே அடி நாக்கில் அழன்று காணும்
மலருமே வருகும்ப வாதந் தானே"

- யூகி வைத்திய சிந்தாமணி-800

- Pain in the shoulder joints and upper limbs.
- Burning and tingling sensation over the cheek and eyes.
- Twitching over the scalp.
- Pain in the hypogastrium.
- Glossitis.

"தானென்ற கசப்போது துவர்ப்புரைப்பு
சாதகமாய் மிஞ்சுகினுஞ் சமைத்த வண்ணம்
ஆனென்ற வாறினது பொசித்தலாலும்
ஆகாயத் தேறலது குடித்தலாலும்
பானென்ற பகலுறக்க மிராவிழிப்பு
பட்டினியெ மிகவுறுதல் பாரமெய்தல்
தேனென்ற மொழியார் மேற் சிந்தையாகில்
சீக்கிரமாய் வாதமது செனிக்கும் தானே"

- யூகி வைத்திய சிந்தாமணி-800

Also stated in Yugi Vaidhiya Chinthamani, that imbalance diet like increased taste of bitter, sour, hot and rotten meals starvation, inappropriate habits and disturbed mind readily affect Vatha and causes disease.

"வளிதரு காய் கிழங்கு வரைவிலா தயிலல் கோழை
முனி தயிர் போன் மிடுக்கு முறையிலா வுண்டி கோடல்
குளிர்தரு வளியிற்றேகடுங்குனிப்புற வுலவல் பெண்டிர்
களிதரு முயக்கம் பெற்றோர் கடி செயல் கருவியாமால்"

- சபாபதி கையேடு

In Sabapathy manuscript, Excess intake of carbohydrate diet, curd, inappropriate diet, exposure to cold, increased sexual action will disturb Vatha & thus cause Vatha diseases.

"பாரினிற் பயப்பட்டாலும் பலருடன் கோபித்தாலும்
காரெனக் கருகியோடிக் கழுமரத்துரத்தினாலும்
ஏர் பெறு தனது நெஞ்சின் மிகத்துக்கமடைந்திட்டாலும்
பாரிய காற்றினாலும் படரினும் வாதங்காணும்"

- பரராச சேகரம்

The book of Pararaja Sekarama denotes, mental afflictions such as fear, anger, sorrow and excess manual work like running, climatical changes also causes disturbances of Vatham.

Qualities of Vatham:

Own qualities-6

Vatha is dry	-	வறட்சி
Vatha is cold	-	குளிர்ச்சி
Vatha is subtl	-	அணுத்துவம்
Vatha is rough	-	கடினம்
Vatha is Unstabl	-	அசைதல்
Vatha is light	-	இலகு

Opposite qualities - 6

Unctuous	-	பசுமை
Hot	-	அக்கினி
Solid	-	கெட்டி
Soft	-	மிருது
Stabl	-	ஸ்திரம்
Heavy	-	பளுவு

Vatham Types:

- Piranan
- Abanan
- Viyanan
- Udhanan
- Samanan
- Nagan
- Koorman
- Kirukaran
- Devathathan
- Dhananjeyan

Functions of Vatham:

Sl. No.	VATHAM	GENERAL FEATURES	CHANGES IN KUMBA VATHAM
1.	Piranan (Uyir Kaal)	Responsible for respiration and digestion.	Normal
2.	Abanan (Kizhnokkumkaal)	Responsible for voiding of urine, stools, semen, menstrual flow.	Normal
3.	Udhanan	It is responsible for the reflex actions like vomiting, hiccough, cough etc.	Normal
4.	Viyanan (Paravukaal)	Found in extension and flexion of the parts of the body and helps in distribution of the nutrients to various parts of the body.	Affected
5.	Samanan (Nadukkaal)	Transfers nutrients to each and every organ.	Affected
6.	Nagan	Helps in opening & closing of eyelids.	Normal
7.	Koorman	Responsible for vision, lacrimation and yawning.	Normal
8.	Kirugaran	Induces appetite,and all secretions in the body including nasal secretion and sneezing.	Normal
9.	Thevathathan	Induces and stimulates a person to become alert, get anger, to quarrel, to sleep etc.	Affected
10.	Dhananjeyan	Resides in the cranium and produces bloating of the body after death. This leaves from the body after 3 days of death, forming a way through the skull.	----

In Kumba Vatham, **Viyanan, Samanan, Thevathathan** will be mainly affected.

Exaggeration of Vatham:

- Body weakness and darkness.
- Shivering.
- Abdominal distension.
- Constipation.
- Insomnia.
- Liking to eat hot foods.

- Immunity.
- Giddiness.

Diminition of Vatham:

- Body ache.
- Hoarseness of voice**.**
- Loss of memory.
- Altered consciousness.
- Sleep disturbances.
- Anorexia.
- Paleness & coolness of body.
- Excessive salivation.
- Heaviness of body.

The functions of other two humours are discussed below:

FUNTIONS OF PITHAM:

Pitham is functionally divided into five types. They are:

Sl. No.	PITHAM	NORMAL FEATURES	CHANGES IN KUMBA VATHAM
1.	Anala Pitham	Helps in appetite and digestion.	Normal
2.	Ranjaga Pitham	Maintains colour and contents of blood.	Normal
3.	Sathaga Pitham	Controls the whole body and responsible for fulfiling a purpose.	Affected
4.	Prasaga Pitham	Dwells in the skin and concerned with the shine, glow, texture and its complexion.	Normal
5.	Alosaga Pitham	Vision.	Normal

In Kumba Vatham, **Sathaga Pitham** is mainly affected.

FUNCTIONS OF KAPHAM:

It is of five types. They are:

Sl. No.	KAPHAM	GENERAL FEARTURES	CHANGES IN KUMBA VATHAM
1.	Avalambagam	Controls the heart and circulatory system.	Normal
2.	Kilethagam	Moistens, softens the food and helps to be digested.	Normal
3.	Pothagam	Sensory perception of taste.	Normal
4.	Tharpagam	Responsible for the coolness of the eyes, sometimes may be referred to as cerebrospinal fluid.	Normal
5.	Santhigam	Necessary for the lubrication and the free movements of joints.	Affected

In Kumba Vatham, **Santhigam** is affected.

UDAL THATHUKKAL (SEVEN PHYSICAL CONSTITUENTS):

Sl. No.	UDAL THATHUKKAL	GENERAL FEARTURES	CHANGES IN KUMBA VATHAM
1.	Saaram (Digestive essence)	Responsible for the growth & development.	Normal
2.	Senneer (Blood)	Responsible for the colour of blood and nourishment of the body.	Normal
3.	Oon (Muscle)	Gives contour to the body which is needed for the physical activity.	Affected
4.	Kozhuppu (Fat)	Lubricates the organs to facilitate frictionless functions.	Normal
5.	Enbu (Bones)	Supports & protects the vital organs.	Affected
6.	Moolai (Bone marrow)	Nourishes the bone marrow.	Normal
7.	Sukkilam / Suronitham	Responsible for reproduction	-

Derangement of Vatham leads to vitiation of Pitham and Kapham leading to disturbances in Udal Thathukkal.

The Other factors responsible for derangement of three vital humours and Udal Thathukkal are discussed below:

THINAI (LAND):

The geographical distribution of the land is classified into five regions:

1. Kurinchi - Mountain and its surroundings, causes Kapha noigal
2. Mullai - Forest and its adjacent area, causes Pitha, Vatha noigal
3. Marudham - Fertile fields and its surroundings, safest place
4. Neidhal - Sea and its surroundings, Vatha diseases are common here.
5. Paalai - Desert and its surroundings, Vatha, Pitha, Kapha diseases are common

The above features are described clearly in Thanvanthiri Naadi as,

"குறிஞ்சி நிலமே வாதமாங் கூறும் பாலை பித்தமாஞ்
செறிந்த மருதந் சிலேத்மமதாஞ் சிலேத்ம வாத முல்லையதாம்
நிறைந்த நெய்தல் வாத பித்தம் நிலங்க ளதனை மயக்காயி
லுறைத்த வியாதி கந்திருக்க முபாய மறிந்து செய்வீரே"

- தன்வந்திரி நாடி

KAALA MARUBADUGAL: PARUVAKALAM (SEASONS)

Sl. No.	KAALAM	KUTTRAM	STATE OF KUTTRAM	SUVAI
1.	Kaar Kaalam Aavani & Purattasi 16th August To 15th October	VATHAM-PITHAM-	Vettrunilai Vazharchi, Thanilai Vazharchi	Enippu, Pulippu, Uppu
2.	Koothir Kaalam Iypasi & Karthigai 16th October To 15th December	VATHAM-PITHAM-	Thanilai Vazharchi, Vettrunilai Vazharchi	Enippu, Kaippu, Thuvarppu
3.	Munpani Kaalam Margazhi & Thai 16th December To 15th February	PITHAM-	Thannilai Adaithal	Enippu, Pulippu, Uppu
4.	Pinpani Kaalam Masi & Panguni 16th February To 15th June	KAPHAM	Thannilai Vazharchi	Enippu, Pulippu, Thuvarppu

5.	Elavenir Kaalam Chithirai & Vaikaasi 16th April To 15th June	KAPHAM	Vettrunilai Vazharchi	Kaippu, kaarppu Thuvarppu
6.	Mudhuvenir Kaalam Aani & Aadi 16th June To 15th August	VATHAM KAPHAM	Thannilai Vazharchi Thannilai Adaithal	Enippu

UDAL VANMAI:

It means strength and vitality of the body and classified into 3 types.

1. Eyarkai vanmai - Inherited immunity
2. Kala vanmai - Immunity occurred by Age, season & time
3. Cheyarkai vankai - Improvement of 3 vitality obtained by diet (தினசரி) day-to-day habits and physical exercise.

Any modifications in Udal Vanmai leads to diseases.

NOI KANIPPU VIVADHAM (Differential Diagnosis):

Resembling the symptoms of Kumba Vatham are mentioned here:

1. Sagana vatham:

"கேளுமே கழுத்தின் கீழரைக்கு மேலும்
கேடியான கரமிரண்டு மிகவே நொந்து
வாளுமே சரீரமெல்லாங் கனத்திருக்கும்
வாலிபர்க்கு மனங்கண்ணு மயக்கமாகும்
ஏளுமே இரண்டு கண்ணும் எரிச்சலுண்டாம்
ஏற்றமாய் மலந்தானும் இறுகிக் காணும்
தேளுமே கொட்டினது போற் கடுக்கும்
சேகன வாதத்தினிடந் தீர்கந்தானே"

- யூகி வைத்திய சிந்தாமணி-800

- Neck pain.
- Radiating pain to the shoulders and upper limb.
- Heaviness of the body.
- Mental depression.

- Giddiness.
- Burning sensation in the eyes.
- Constipation.

2. Paanikambavatham:

"மார்க்கமாய் வாய்வுமாய்.....
நடுக்கமாய் கையிரண்டுந் திமிரு முண்டாம்
..... துணர்ச்சியற்று
பாணி கம்பவாதத்தின் பாங்குதானே"

- யூகி வைத்திய சிந்தாமணி-800

- Tingling sensation numbness of upper limbs.
- Tremor of upper limbs.

Noi Nadal Noi Muthal Nadal

Diagnostic methods adopted in Siddha system of medicine are given below.

a). Piniyari Muraimai it based on following principles:

1. Poriyal arithal
2. Pulanal arithal
3. Vinathal

"Pori and Pulan are the five organs of perceptions and their senses respectively. Nose – smell, Tongue – taste, Eyes – vision, Ears & Skin – auditory & touch. Porigal of patient and Doctors' are used by the physician as instruments.

Vinathal is a method of enquiring about the details of patient's problem from his own words or from their attendant.

The above mentioned principles can be compared to that of Interrogation (Vinathal) and Inspection (Poriyal arithal), Auscultation, Percussion & Palpation (Pulanal arithal).

The important method adopted to diagnose the disease is by means of "Envagai Theruvagal".

"நாடி ஸ்பரிசம் நா நிறம் மொழி விழி
மலம் மூத்திரமிவை மருத்துவராயுதம்"

It is considered to be physician's instrument and this can be understand by following stanza:

"தொடுக்கலுற்று அட்ட விதப் பரீட்சை தன்னை
துலக்கமுறும் பண்டிதரே தெளிவாகப்
பகுக்கரிய நாடியை நீ பிடித்துப் பாரு
பகர்கின்ற வார்த்தை பார் நாவைப் பாரு
வகுக்கரிய தேகமென்றத் தொட்டுப் பாரு
வளமான சரீரத்தின் நிறத்தைப் பாரு
சகிக்கரிய மலத்தைப் பார் சலத்தைப் பாரு
சார்ந்த விழி தனைப் பார்த்து தெளிவாய் காணே"

- அகத்தியர் வைத்திய வல்லாதி-600

Envagai Thervugal Constitutes:

Nadi, Sparisam, Naa, Niram, Mozhi, Vizhi, Malam, Mootharam.

The fact regarding Envagai Thervugal suggests that it is mostly used as a diagnostic standard in Siddha system and more concentration should be given to get proficient knowledge.

Naadi (Pulse):

According to Agathiyar Naadi,

"கரிமுக னடியை வாழ்திக்
கைதனில் நாடி பார்க்கில்
பெருவிர லங்கு லத்தில்
பிடித்தடி நடுவே தொட்டால்
ஒருவிர லோடில் வாதம்
உயிர்நடு விரலிற் பித்தம்
திருவிரல் மூன்றி லோடில்
சிலேத்தும நாடி தானே"

- அகத்தியர் நாடி

பெருவிரல் பக்கமாக மணிக்கட்டுக்கு ஒரு அங்குலத்திற்கு மேல் ஆரை என்பின் மேலோடும் நாடி நரம்பு இரத்தக்குழாயின் மேல் மூன்று விரல்களை வைத்து சற்று அழுத்தியும், தளர்த்தியும் பார்க்க ஆள்காட்டி விரலாகிய முதல் விரலில் உணர்த்துவது வாதம் எனவும், நடுவிரலில் உணர்த்துவது பித்தம் எனவும் பௌத்திர விரலில் உணர்த்துவது கபம் எனவும் அறியவும்.

"அறிந்துபார் வாதமே தனித்த தானால்
அன்னம் போல் நடக்குமப்பா நாடி பாரு
சரிந்திடவே கால் முடக்கும் போது காட்டும்"

- அகத்தியர் ரத்தின சுருக்கம்

This poem says, Vitiated Vatha causes difficultly in walking (or) impaired function of lower extremities. The examination of Naadi has been recognised as one of the principle means of Diagnosis and prognosis of disease from times immemorial.

Sparisam (Skin):

Skin examination can be made out by inspection and touch. It reveals warmness / chillness / dry / weeping skin / rough / smooth / soft / hard, tenderness or presence of ulcers, swelling, wrinkles, hair, pigmentation etc.,

"அறைந்தோம் வாத ரோகியுடல்
ஆழற்கண் முகமும் பல் மலமும்
நிறைந்த விழியில் நீர் வடியும்
நீண்ட நாவு கறுத்திடவும்
நிறைந்த முள்ளாய் தானிருக்கும்
உறைந்த நீரால் கருகருத்து
முறையாய் ரோகம் உண்டாமே"

Naa (Tongue):

The colour, character and condition of the tongue changes according to the changes in Mukkutram.

Niram (Colour complexion):

As Vatham is root cause for Vatham the colour of the patient's skin, tooth, etc., would be dark or black in colour.

Mozhi (Speech):

Speech in Vatha patients may vary according to deranged dhosam and grade of the disease.

Vizhi (Eye):

In this disease condition, both motor and sensory disturbances of the eye can be expected.

Burning of the eyes, lacrimation, irritation, colour changes are also noticed under this group.

Mostly in Kumba Vatham the eyes become dark and smoky in colour.

Malam (Stools):

In Vatha diseases stools would be black in colour with constipation.

Moothiram (Urine):

According to Agasthiyar Naadi,

"உறைந்த நீருங் கருகருத்து
முறையாய் ரோகமு முண்டாமே"

- அகத்தியர் நாடி

In Vatha disease, the colour of urine would be black leading to various diseases.

Neer kuri:

Niram	-	Denote the colour of the urine voided
Manam	-	Denote the smell of the urine
Edai	-	Denote the specific gravity of the urine
Nurai	-	Denote the frothy nature of the urine voided
Enjal	-	Indicates the quantity of the urine voided

Nei kuri:

The method of Nei Kuri is described in Theriyar Venba as,

"அருந்துமாறிரதமும் அவிரோதமாய்
அக்கல் அலர்தல் அகாலவூண் தவிர்த்தழற்
குற்றளவருந்தி உறங்கி வைகறை
ஆடிக் கலசத் தாவி யேகாது பெய்
தொரு முகூர்த்தக் கலைக்குட்படு நீரின்
நிறக்குறி நெய்க்குறி நிரூபித்தல் கடனே"

- தேரையர் வெண்பா

Method:

Prior to the day of urine examination, the patient is advised to take balanced diet and the quantity of food must be proportionate to his or her appetite and he or she should have had a good sleep. After waking up in the morning, urine voided first, is collected in a glass container and is subjected to analysis within 1 ½ hours. A drop of gingelly oil is dropped without shake. The nature of the Nei kuri should be noticed in direct sunlight.

Character of different Neer:

"அரவென நீண்டிடின ஃதே வாதம்"

When drop of oil spreads like a snake, it indicates Vatha neer,

"ஆழிபோற் பரவின் அஃதே பித்தம்"

If the drop of oil remains as that of ring it indicates Pitha neer.

"முத்தொத்து நிற்கின் மொழிவதன் கபமே"

If the drop of oil remains as that of pearl it indicates Kapha neer.

Along with above mentioned eight types of examination another few principles in Siddha medicine are there. Man is composed of 5 elements like universe.

"அண்டத்திலுள்ளதே பிண்டம்
பிண்டத்திலுள்ளதே அண்டம்

அண்டமும், பிண்டமும் ஒன்றே
அறிந்துதான் பார்க்கும் போதே”

- சட்டமுனி நிகண்டு

Time, place, nature of the body (Pirakiruthi) and environmental changes have inter relations among them.

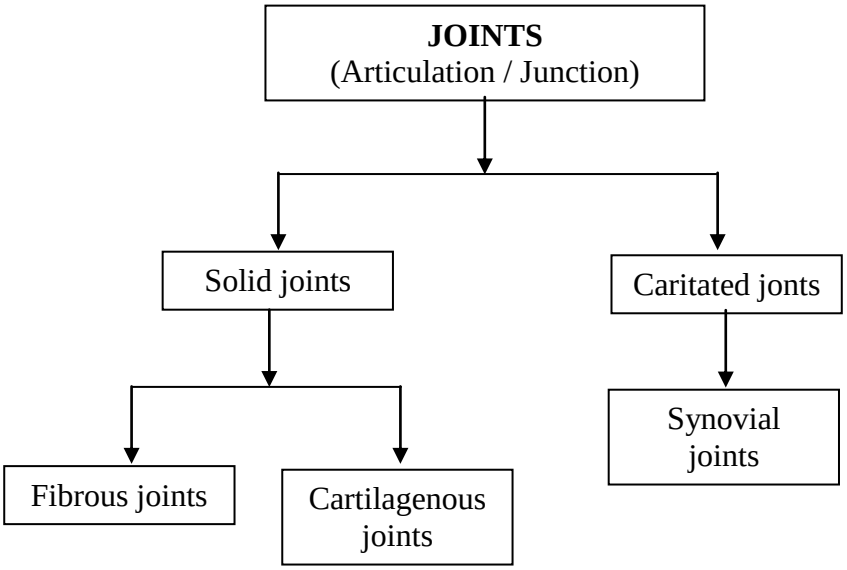
So, besides Envagai Thervugal, Parva Kalangaal and Thinnai also should be taken in consideration to arrive at perfect and correct diagnosis.

b) MODERN ASPECT

INTRODUCTION:

JOINTS:

The place of union or junction between two (or) more bones of the skeleton, especially a junction that admit more (or) less motion of one (or) more bones is formed termed as a joint.



SOLID JOINTS (Non-synovial joints), are termed synarthroses and are commonly grouped according to the principle types of interosseous connective tissue, into fibrous joint and cartilaginous joints. Synarthroses of both types, are characterised by almost all the cranial junction and their respective derivations and the desmocranium and chronologicranium cavitated (synovial) joints are formaly termed diarthroses and with few exceptions (the tea mandibular joints and those involving the clavi are between the ends (or) other circum scribe surface of endochondrial bones.

GENERAL CLASSIFICATION OF SYNOVIAL JOINTS:

1. Plane joints.
2. Ginglymi (hinge) joints.
3. Trochoid (pivot) joints.
4. Spheroidal joints (Ball and socket).
5. Bicondylar joints.
6. Ellipsoid joints.
7. Sellar (saddle) joints.

PERIARTICULAR DISORDERS OF THE EXTREMITIES:

A number of periarticular disorders have become increasingly common, due in part to greater participation in recreational sports by individuals of a wide range of ages. Periarticular disorders most commonly affect the knee (or) shoulder.

SHOULDER JOINT:

Made up of three bones, they are:

i) Clavicle (Collar bone).
ii) Hamerus (Upper arm bone).
iii) Scapula (Shoulder blade),

as well as associated muscles, ligaments and tendons. The articulation between the bones of the shoulder make up the shoulder joints. “Shoulder joint”, typically which is the major joint of the “shoulder”. But can more broadly include the acromioclavicular joint. In human anatomy, the shoulder joint comprises the part of the body where the humerus attaches to the scapula, the head sitting in the glenoid.

The shoulder must be mobile enough dor the wide range of the arms hands, but also stable enough to allow for action such as lifting and pulling.

i) Clavicle (Collar bone):

The clavicle (or) collar bone is a flat bones that serves as a structure between the scapula and the sternum. It is the only long bone in the body that lies horizontally. It makes up part of the shoulder and the pectoral girdle and is palpable in all people.

ii) Humerus (Upper arm bone):

It's nearly hemispherical in form. It is directed upward, medial and a little backward and articulates with the glenoid cavity of the scapula to form the glenohumeral joint (Shoulder joint).

iii) Scapula (Shoulder blade):

Also known as shoulder blade. It is a triangular, flat bone of the shoulder girdle that articulates with the head of humerus at the glenohumeral joint, which is popularly called as shoulder joint.

JOINTS OF SHOULDER:

i) Sternoclavicular Joint.
ii) Glenohumeral Joint.
iii) Acromioclavicular Joint.

i) Sternoclavicular joint:

This joint is formed by medial end of the clavicle with the manubrium (or) top most portion of the sternum. The costo clavicular ligament is the main stabilizer of the of the joint. The sternoclavicular joint is the sole connection between the axial skeleton and the upper extremity.

ii) Acromio clavicular joint:

The acromio clavicular joint is the sole joint of acromion, clavicle and scapula. The joint is diarthrodial joint itself has a little movement. It is held together by it's joint capsule and the coracoacromial ligaments.

iii) Glenohumeral joint:

The glenohumeral joint is ball and socket synovial joint formed by the articular surface of the glenoid cavity and the head of the humerus. It is the main joint of the shoulder and allows the arm to rotate in a circular fashion (or) to hinge out and up away from the body. Shoulder joint is very mobile because glenoid fossa is shallow but this also adds to instability of the shoulder.

LIGAMENTS OF SHOULDER JOINT:

i) Coracoclavicular ligament.
ii) Glenohumeral ligament.
    a). Superior
    b). Middle
    c). Inferior
iii) Coracohumeral ligament.

i) Coracoclaviacular ligament:

Two coracoclavicular ligaments are,

a). Conoid
b). Trapezoid

which maintain the articulation of the clavicle with the coracoid process of the scapula. It is primary resistant to superior and posterior acromioclavicular dislocation.

ii) Glenohumeral ligament:

Superior glenohumeral ligament has a variable origin on lateral aspect of scapula and inserts on the humerus near the lesser tubercle. Middle glenohumeral ligament originates from the laburm and inserts on the humerus, medial to the lesser tubercle.

Inferior glenohumeral ligament originates from the labrum and the adjacent glenoid neck, inserts on the anatomical neck of the humerus.

iii) Coracohumeral ligament:

The coracohumeral ligament originates on the base and lateral border of the coracoid process of the scapula and inserts on the greater tubercle.

NEUROVASCULAR SUPPLY:

Arterial supply to the glenohumeral joint is via the anterior and posterior circumflex humeralarteries and the suprascapular arteries. Branches from these arteries form an anastamotic network around the joint.

MOVEMENTS:

- As a ball and socket synovial joint, wide range of movement or permitted.
- Extension (upper limb backwards in sagittal plane).
- Flexion (upper limb forwards in sagittal plane).
- Abduction (upper limb away from midline in coronal plane).
- Adduction (upper limb towards midline in coronal plane).
- Medical rotation (Rotation towards the midline, so that the thumb is pointing medially).
- Lateral rotation (Rotation away from the midline, so that the thumb is pointing laterally).

MOBILITY AND STABILITY:

The shoulder joint is one of the most mobile in the body, at the expense of stability. Here, we shall consider the factors that permit movement and those that contribute towards joint structure.

PERIARTHRITIS

Introduction:

'Periarthritis' also called frozen shoulder (or) adhesive capsulitis of shoulder, is a chronic inflammatory disorder of the shoulder and surrounding of the soft tissues. This condition is frequently caused by injury, leading to pain and lack of use. As the joint becomes progressively lighter and stiffer, simple movements, such as raising the arm, becomes difficult. If inflammation occurs with the capsule itself, the shoulder bones are unable to move with in the joint. In some instances, the patients may be unable to move the shoulder at all.

The definition, also defined by Lundberg, is:

- Shoulder joint elevation of $\leq 135°$
- Restriction of motion is localised to the glenohumeral joint
- History, clinical and radiological examination show no other explanation

EPIDEMIOLOGY:

The incidence of periarthritis is approximately 3 per cent in the general population. Occurrence is rare in children and people under 40 but peaks between 40 and 70 years of age. At least in its idiopathic form, the condition is much more common in women than in men (70% of patients are women aged 40–60). Frozen shoulder is more frequent in diabetic patients and is more severe and more protracted than in the non-diabetic population. Vaccine-related shoulder injuries (SIRVA) are increasing.

CLASSIFICATION:

As in all situations where not all facts are known, many different ways of classifying may exist.

Perhaps it is wise to use the initial classification of Lundberg (1969):

- Primary periarthritis
- Secondary periarthritis

But not even this is clear – these groups need to be subdivided:

- Primary periarthritis	- Diabetic
	- No other explanation
- Secondary periarthritis	- Post-traumatic
	- Iatrogenic
	- Other

There exists, of course, other types of classification. In some, the diabetic periarthritis is a secondary type. The secondary may be divided into extrinsic (causes outside the joint) and intrinsic (causes inside the joint).

RISK FACTORS AND CAUSES:

A risk factor is something that elevates the risk of developing a disease or condition. For example, smoking is a risk factor for cancer - it elevates the risk of developing lung cancer.

Common risk factors are:

- Age - being over 40 years of age.
- Gender – common in women.
- Recent surgery or arm fracture- immobility of recovery may cause the shoulder capsule to stiffen.
- Chondral lesions, avascular necrosis or tendon injuries.
- Scarring following traumatic tissue injury.
- Diabetes - two to four times more likely to develop periarthritis for unknown reasons; symptoms may be more severe.
- Having suffered a stroke.
- Hyperthyroidism (overactive thyroid).
- Hypothyroidism (underactive thyroid).
- Cardiovascular disease (heart disease).
- Parkinson's disease.
- Tonic seizures
- Accidents
- Lung disease
- Connective tissue diseases
- Rheumatoid arthritis
- Highly active antiretroviral therapy (HAART).
- After breast and lung surgery
- May have an autoimmune component.
- Hypertriglyceridemia,
- CVA with upper-extremity paresis,
- Brachial plexus injuries.
- Idiopathic frozen shoulder
- Cervical spinal cord injury, and
- Parkinson disease.

SIGNS AND SYMPTOMS:

The most pervasive sign or symptom is;

- A persistently painful and stiff shoulder joint.
- Severe pain and sleep deprivation for prolonged periods due to pain that gets worse when lying still and restricted movement/positions.
- The condition can lead to depression, problems in the neck and back, and severe weight loss due to long-term lack of deep sleep.
- People who suffer from periarthritis may have extreme difficulty concentrating, working, or performing daily life activities for extended periods of time.

Signs and symptoms of periarthritis develop gradually; usually in three stages in which signs and symptoms worsen gradually and resolve within a two - year period.

STAGES OF PERIARTHRITIS:

There are three stages of periarthritis,

- **Painful stage or freezing stage** - The freezing stage shows an insidious onset where pain is dominating the clinical picture. Quite often, subacromial impingement is initially suspected because of the involvement of the subacromial bursa. At the end of this period range of motion becomes limited in the typical way and diagnosis is usually no longer a problem. The shoulder becomes stiff and then very painful with movement. Movement becomes limited. Pain typically worsens at night.
- **Frozen/adhesive stage** - the shoulder becomes increasingly stiff, severely limiting range of motion. Pain may not diminish, but it does not usually worsen.
- **Thawing stage** - The thawing includes successive reestablishment of normal or near normal range of motion. Movement in the shoulder begins to improve. Pain may fade, but occasionally recur.

However, this time plane is an approximation of the most common time course of this disease. It may vary greatly between different patients.

PATHOGENESIS:

There are three different modalities of outcome following primary FS:

- 40% restore the range of motion (ROM) and are pain free
- 45% regain functional ROM but show residual symptoms
- 15% show persisting stiffness with marked handicap (Noel et al 2000, Shaffer et al 1992).

In frozen shoulder, there is a lack of synovial fluid, which normally helps the shoulder joint, a ball and socket joint, move by lubricating the gap between the humerus (upper arm bone) and the socket in the shoulder blade. The shoulder capsule thickens, swells, and tightens due to bands of scar tissue (adhesions) that have formed inside the capsule. As a result, there is less room in the joint for the humerus, making movement of the shoulder stiff and painful. This restricted space between the capsule and ball of the humerus distinguishes periarthritis from a less complicated, painful, stiff shoulder.

Dupuytren's disease is again shown to be related to PA. Dupuytren's disease is significantly more common than usual among male relatives to FS patients and the microscopic changes in the anterior capsule and coracohumeral ligament are very similar to those in Dupuytren's disease of the hand (Bunker & Anthony 1995, Smith et al 2001). They show that half of the patients with FS also show signs of Dupuytren's! Similarities with Dupuytren's are also shown when analysing the fibrotic capsule for cytokines and proteinases (Bunker et al 2000).

Pathoanatomically there is an involvement of the capsule in the glenohumeral joint. The capsule volume is reduced and this is the cause for the restricted range of motion (Itoi & Tabata 1992).

Diabetes and its relationship to periarthritis:

- The incidence of periarthritis is two to four times higher in diabetics than in the general population.
- The prevalence of diabetes in patients with periarthritis was 38.6%, whereby the total prevalence of a diabetic condition in patients with periarthritis was 71.5%

- Shoulder arthritis is common in type I and type II diabetic patients.

However, it is associated with age in type I and II diabetic patients and with the duration of diabetes in type I patients.

Possible aetiology:

Diabetics have a higher incidence of periarthritis, probably because poor circulation leads to abnormal collagen repair and degenerative changes. The theory is that platelet derived growth factor is released from abnormal or ischemic blood vessels, which will then act as a stimulus to local myofibroblast proliferation. What follows has been proposed that microvascular disease, abnormalities of collagen repair and predisposition to infection may link diabetes with frozen shoulder.

NATURAL COURSE:

Primary periarthritis is usually considered to be a self limiting disease which usually lasts for 18-24 months but will usually heal with minor residual handicap.

Examination:

Currently the diagnosis of primary periarthritis is based on the findings of the patient history and physical examination.

The following outcome measures have been used in studies researching periarthritis.

- Shoulder Pain and Disability Index (SPADI)
- Disability of the Arm, Shoulder and Hand scale
- American Shoulder and Elbow Surgeons Standardized Shoulder Assessment Form (ASES)
- Simple Shoulder Test (SST)
- Penn Shoulder Scale (PSS)
- NPRS
- VAS
- SF-36

In a recent systematic review, the psychometric properties of the SPADI, DASH, ASES and SST were examined. Reliability, construct validity and responsiveness were all found to be favourable for various shoulder pathologies but the review did not address their strength relative to adhesive capsulitis specifically.

Observation of Posture and Positioning:

- Scapular winging of the involved shoulder may be viewable from the posterior and/or lateral views.

Screen: Upper Quarter Exam (UQE) & Neuro Screen (dermatomes, myotomes, reflexes)

- A full UQE should be performed to rule out cervical spine involvement or any neurological pathologies.

ROM Screen: Active/Passive/Overpressure:

Cervical, Thoracic, Shoulder ROMs with OP as well as rib mobility should be performed.

- Scapular substitution frequently accompanies active shoulder motion.

Resisted muscle tests:

Shoulder External Rotation (ER)/ Internal Rotation (IR) / Abduction (ABd) (seated) should be performed.

- Patients with adhesive capsulitis present with weakness in shoulder ER, IR and ABd relative to the uninvolved side.

Formal ROM: Active/Passive/Overpressure

Shoulder Flex/ABd/ER/IR:

- The method of measuring ER and IR ROM in patients with suspected periarthritis varies in the literature.
- Patients with periarthritis commonly present with ROM restrictions in a capsular pattern. A capsular pattern is a proportional motion restriction unique to every joint that indicates irritation of the entire

joint. The shoulder joint has a capsular pattern where external rotation is more limited than abduction which is more limited than internal rotation (ER limitations > ABD limitations > IR limitations). In the case of periarthritis, ER is significantly limited when compared to IR and ABD, while ABD and IR were not seen to be different.

Joint Accessory Mobility:

Glenohumeral joint:

- Anterior
- Inferior
- Posterior
- Posterior Capsule Stretch

In patients with periarthritis, the anterior and inferior capsule will be the most limited but joint mobility will be restricted in all directions.

Special tests:

Yang et al. investigated the reliability of three function-related tests in patients with shoulder pathologies via a non-experimental study (See Resources for scoring guide):

Hand-to-neck:

- Shoulder flexion + abduction + ER
- Similar to ADLs like combing hair, putting on a necklace

Hand-to-scapula:

- Shoulder extension + adduction + IR
- Similar to ADLs like getting into back pocket

Hand-to-opposite scapula:

- Shoulder flexion + horizontal Adduction

Reliability of the three tests was excellent, ranging from 0.83-0.9. Correlation between the three was moderate (r=0.64 to 0.66).

These functional measures appear to be helpful for their objectivity in measuring shoulder dysfunction. However, even though the test battery is believed to be comprised of movements fundamental to activities of daily living, the direct relationship between these tests and activities of daily living cannot be assumed.

Other tests:

No specific clinical test for periarthritis has been reported in the literature and there remains no gold standard to diagnose periarthritis. While there are no confirmed diagnostic criteria, a recent study determined a set of clinical identifiers that achieved consensus among 70 experts in the field for the first or early stage of primary (idiopathic) periarthritis. The following are tools that can be used to help determine the stage of periarthritis and/or irritability status.

Consensus was achieved on eight clinical identifiers clustered into two discrete domains (pain and movement) as well as an age component.

1) Pain:

- Strong component of night pain
- Pain with rapid or unguarded movement
- Discomfort lying on the affected shoulder

- Pain easily aggravated by movement

2) Movement:

- Global loss of active and passive ROM
- Pain at end-range in all directions

3) ONSET > 35 years of age

DIAGNOSIS:

One sign of a periarthritis is that the joint becomes so tight and stiff that it is nearly impossible to carry out simple movements, such as raising the arm. The movement that is most severely inhibited is external rotation of the shoulder.

People complain that the stiffness and pain worsen at night. Pain due to periarthritis is usually dull or aching. It can be worsened with attempted motion, or if bumped. Periarthritis can be diagnosed if limits to the active range of motion (range of motion from active use of muscles) are the same or almost the same as the limits to the passive range of motion (range of motion from a person manipulating the arm and shoulder). An arthrogram or an MRI scan may confirm the diagnosis, though in practice this is rarely required.

MRI and ultrasound:

Imaging features of adhesive capsulitis are seen on non-contrast MRI, though MR arthrography and invasive arthroscopy are more accurate in diagnosis. Ultrasound and MRI can help in diagnosis by assessing the coracohumeral ligament, with a width of greater than 3 mm being 60% sensitive and 95% specific for the diagnosis. The condition can also be associated with oedema or fluid at the rotator interval, a space in the shoulder joint normally containing fat between the supraspinatus and subscapularis tendons, medial to the rotator cuff. Shoulders with adhesive capsulitis also characteristically fibrose and thicken at the axillary pouch and rotator interval, best seen as dark signal on T1 sequences with oedema and inflammation on T2 sequences. A finding on ultrasound associated with adhesive capsulitis is hypoechoic material surrounding the long head of the biceps tendon at the rotator interval,

reflecting fibrosis. In the painful stage, such hypoechoic material may demonstrate increased vascularity with Doppler ultrasound.

DIFFERENTIAL DIAGNOSIS:

Some conditions can present with similar impairments and should be included in the clinician's differential diagnosis. These include, but are not limited to, osteoarthritis, acute calcific bursitis/tendinitis, rotator cuff pathologies, parsonage-Turner syndrome, a locked posterior dislocation, or a proximal humeral fracture.

Osteoarthritis (OA):

Both may have limited abduction and external rotation AROM but with OA, PROM will not be limited. Also, OA will have the most limitations with flexion while this is the motion that is least affected in adhesive capsulitis. Radiography have been used to rule out pathology of osseous structures.

Bursitis:

Bursitis presents very similarly to adhesive capsulitis, especially compared to the early phases of frozen shoulder. Patients with bursitis will present with a non-traumatic onset of severe pain with most motions being painful. A main difference will be the amount of PROM achieved with adhesive capsulitis being extremely limited and painful while bursitis will, while still painful, have larger ranges.

Parsonage -Turner Syndrome (PTS):

PTS occurs due to inflammation of the brachial plexus. Patients will present without a history of trauma and with painful restrictions of all motions. The pain with PTS usually subsides much quicker than with adhesive capsulitis, and patients eventually display neurological problems (atrophy of muscles or weakness) that are seen several weeks after initial onset of pain.

Rotator Cuff (RC) Pathologies:

The primary way to distinguish RC pathologies from adhesive capsulitis is to examine the specific ROM restrictions. Adhesive capsulitis presents with restrictions in the capsular pattern while RC involvement typically does not. RC tendinopathy

may present similarly to the first stage of adhesive capsulitis because there is limited loss of external rotation and strength tests may be normal. MRI and ultrasonography can be used to identify soft tissue abnormalities of the soft tissue and labrum.

Posterior Dislocation:

A posteriorly dislocated shoulder can present with shoulder pain and limited ROM but, unlike adhesive capsulitis, started with a specific traumatic event. If the patient is unable to fully supinate the arm while flexing the shoulder, the clinician should suspect a posterior dislocation.

PREVENTION:

To prevent the problem, a common recommendation is to keep the shoulder joint fully moving to prevent a frozen shoulder. Often a shoulder will hurt when it begins to freeze. Because pain discourages movement, further development of adhesions that restrict movement will occur unless the joint continues to move full range in all directions (adduction, abduction, flexion, rotation, and extension).

CHAPTER-IV

MATERIALS AND METHODS

INTRODUCTION

An open labelled randomized clinical trial to evaluate the therapeutic efficacy of the Siddha formulation **MUKKIRATTAI CHOORANAM** (internal) for the treatment of **KUMBA VATHAM** (Periarthritis) in shoulder joint.

DATA COLLECTION

- Siddha texts & literatures
- Medical journals
- Internet
- Modern medicine text books

TRIAL SPOT

The entire study was conducted on Out patients and In patients department of **Government Siddha Medical College and Hospital, Palayamkottai.**

STUDY POPULATION

Periarthritis develop above the age of 30 years. Found to be approximately 3.4% adults in the general population.

Inclusion and exclusion criteria were mentioned below.

Inclusion criteria:

- Age: 30 – 60 years.
- Sex: both gender
- Patient having main symptoms of shoulder joint pain, radiating towards upper arm and forearm, numbness, restricted movement of upper limb, loss of abduction and forwarded flexion followed by stiffness of the shoulder joints.
- Patient willing to sign the informed consent stating that he / she will consciously stick to the treatment during 30 days. But can opt out of the trial of his / her own.

- Willing for doing laboratory investigations and X-ray imaging.
- Diabetes mellitus.

Exclusion criteria:

- Rheumatoid Arthritis.
- Cervical spondylosis.
- Ischemic heart diseases.
- Systemic hypertension.
- Pregnancy and lactation.
- Recent shoulder dislocation.

Duration of treatment:

Mukkirattai Chooranam was given 2gm b.i.d. with hot water for 30 days. Patients were followed under the guidance and supervision of the Head of the Department, Professor, Reader, Lecturer and Assistant Lecturer of Department of Pothu Maruthuvam, Government Siddha Medical College, Palayamkottai.

Totally 40 patients were selected and studied, the medical history, clinical examinations and every investigation, pain assessment score will be noted for each and every patient.

Formation of clinical parameters:

History including, past, personal, family, dietary, occupation and seasonal variation.

Lab Investigations:

Blood: TC, DC, ESR, HB, Blood sugar, Blood urea, Creatinine, Serum cholesterol, Uric acid, RA factor.

Urine:

- Albumin
- Sugar
- Deposit

Specific Investigation:

- X-Ray of affected shoulder joint (AP and lateral view).
- ECG for some selected cases (R/O Ischemic heart disease).

Assessment of out come:

- Pain assessment by oxford shoulder score.

Investigation based on Siddha system:

Envagai Thervugal:

Naadi, Sparisam, Naa, Niram, Mozhi, Vizhi, Malam, Moothiram.

Neer kuri:

Niram, Manam, Eadai, Nurai, Enjal.

Nei kuri:

A case sheet proforma is prepared on the basis of the Siddha Methodology i.e., Envagai Thervugal, Mukkutram, Nilam, Kaalam, Udal Thathugal. Individual case sheet is maintained for each patient.

CHAPTER-V

RESULTS AND OBSERVATIONS

The randomized clinical trial Phase-II open labelled study was done among 20 In patients and 20 Out patients were treated in Department of Pothu Maruthuvam, Government Siddha Medical College, Palayamkottai. The patients were treated with clinical trial medicine **Mukkiratti Chooranam 2 gm twice a day with hot water for 30 days.** Result were observed with respect to following criteria.

1. Sex Distribution
2. Age Distribution
3. Kaalam
4. Thegi
5. Gunam
6. Religion
7. Paruvakaalam
8. Thinai
9. Occupational status
10. Diet
11. Socio-Economical status
12. Aetiological Factor
13. Mode of Inset
14. Duration of illness
15. Clinical manifestation
16. Grananendrium
17. Kanmendrium
18. Conditions of Mukkutram (Vatha, Pitha, Kapha)
19. Udal Kattukal
20. Envagai Thervugal
21. Naadi
22. Neer kuri
23. Nei kuri
24. Assessment of outcome
24. Gradation of results

25. Laboratory Findings
    a). Out patients
    b). In patients
26. Case summary
    a). Out patients
    b). In patients

1. SEX DISTRIBUTION:

Table-1 Illustrates the Sex Distribution and its percentage.

TABLE-1

SEX DISTRIBUTION

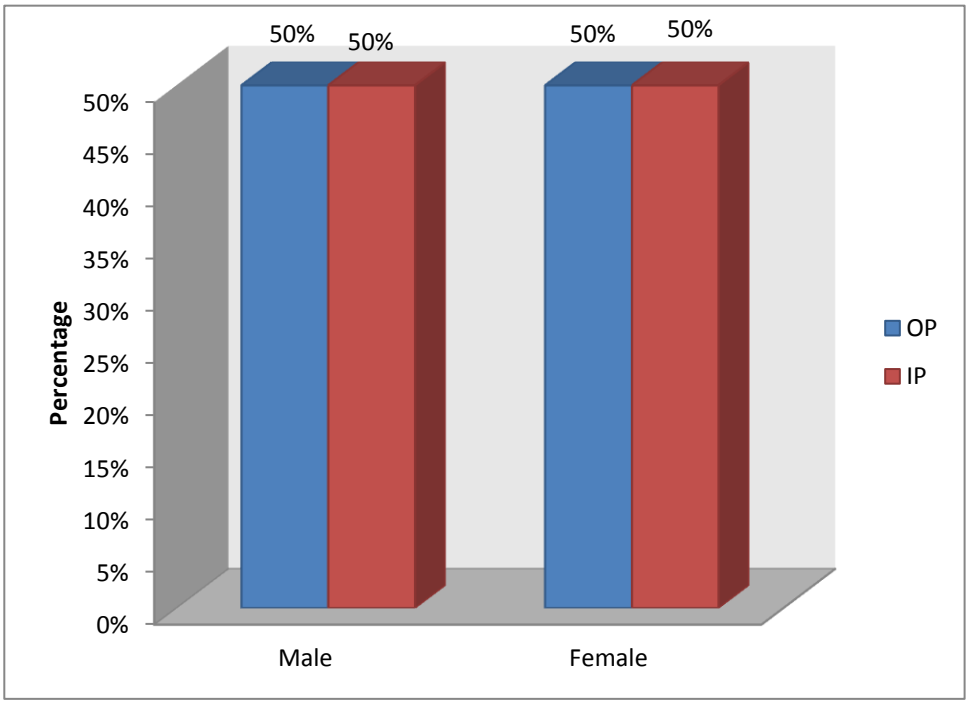
Sl. No.	Sex	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Male	10	50%	10	50%
2.	Female	10	50%	10	50%
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, 50% were Male and 50% were Female.

Among 20 In patients, 50% were Male and 50% were Female.

FIGURE-1

SEX DISTRIBUTION



2. AGE DISTRIBUTION:

Table-3 Illustrates the Age Distribution and its percentage.

TABLE-2

AGE DISTRIBUTION

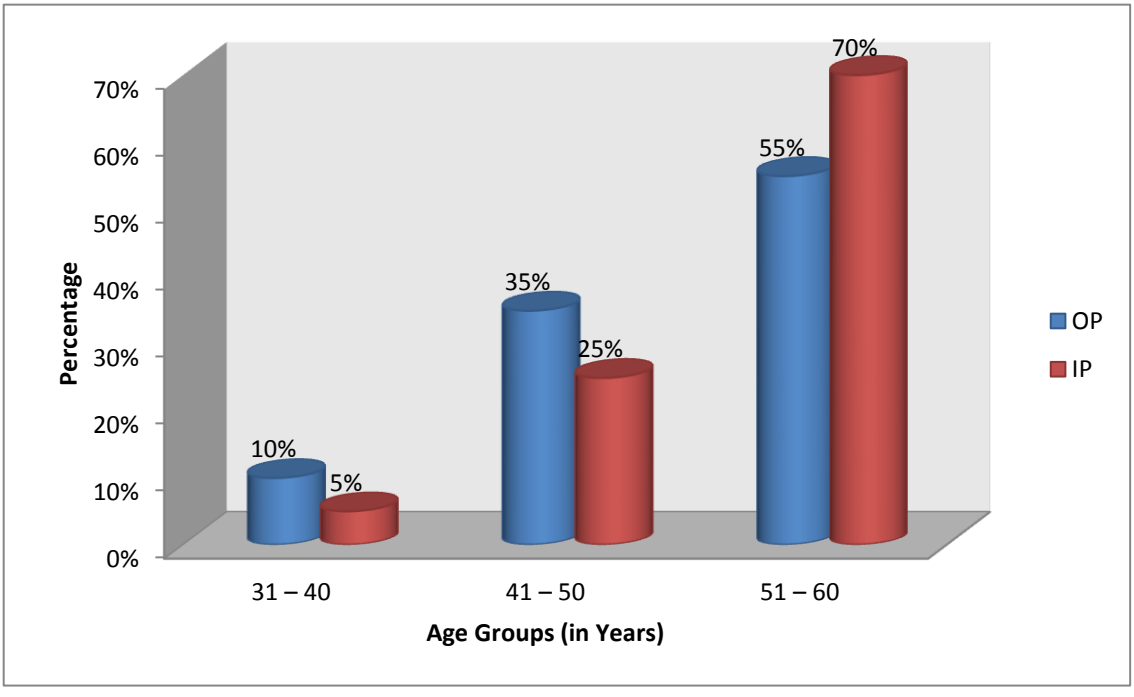
Sl. No.	Age groups (in Years)	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	31 – 40	2	10%	1	5%
2.	41 – 50	7	35%	5	25%
3.	51 – 60	11	55%	14	70%
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, 10% were in the age group of 31 – 40 years, 35% were in the age group of 41 – 50 years, 55% were in the age group of 51 – 60 years.

Among 20 In patients, 5% were in the age group of 31 – 40 years, 25% were in the age group of 41 – 50 years, 70% were in the age group of 51 – 60 years.

FIGURE-2

AGE DISTRIBUTION



3. KAALAM:

Table-3 Illustrates the Kaalam and its percentage.

TABLE-3
KAALAM

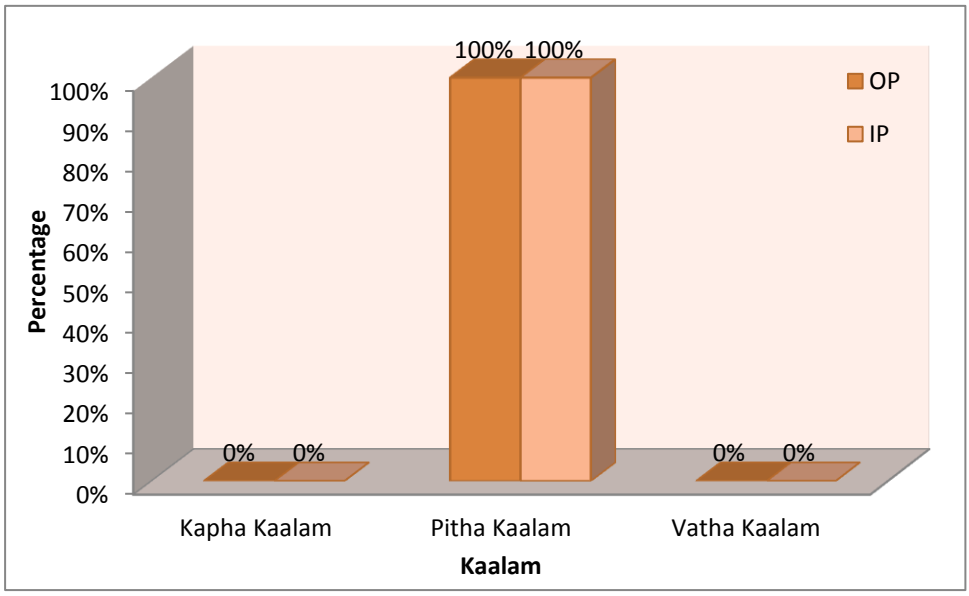
Sl. No.	Kaalam	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Kapha Kaalam	-	-	-	-
2.	Pitha Kaalam	20	100%	20	100%
3.	Vatha Kaalam	-	-	-	-
	Total	**20**	**100%**	**20**	**100%**

In Siddha literature age of individual is fixed as 100 is to 3 Kaalam as,

- Kapha kaalam - First 33 years and 4 months.
- Pitha kaalam - Second 33 years and 4 months.
- Vatha kaalam - Third 33 years and 4 months.

Among 20 Out patients and In patients, 100% of the cases belongs to Pitha Kaalam.

FIGURE-3
KAALAM



4. CONSTUTION OF THE BODY:

Table-4 Illustrates the Constitution of The Body and its percentage.

TABLE-4

CONSTITUTION OF THE BODY

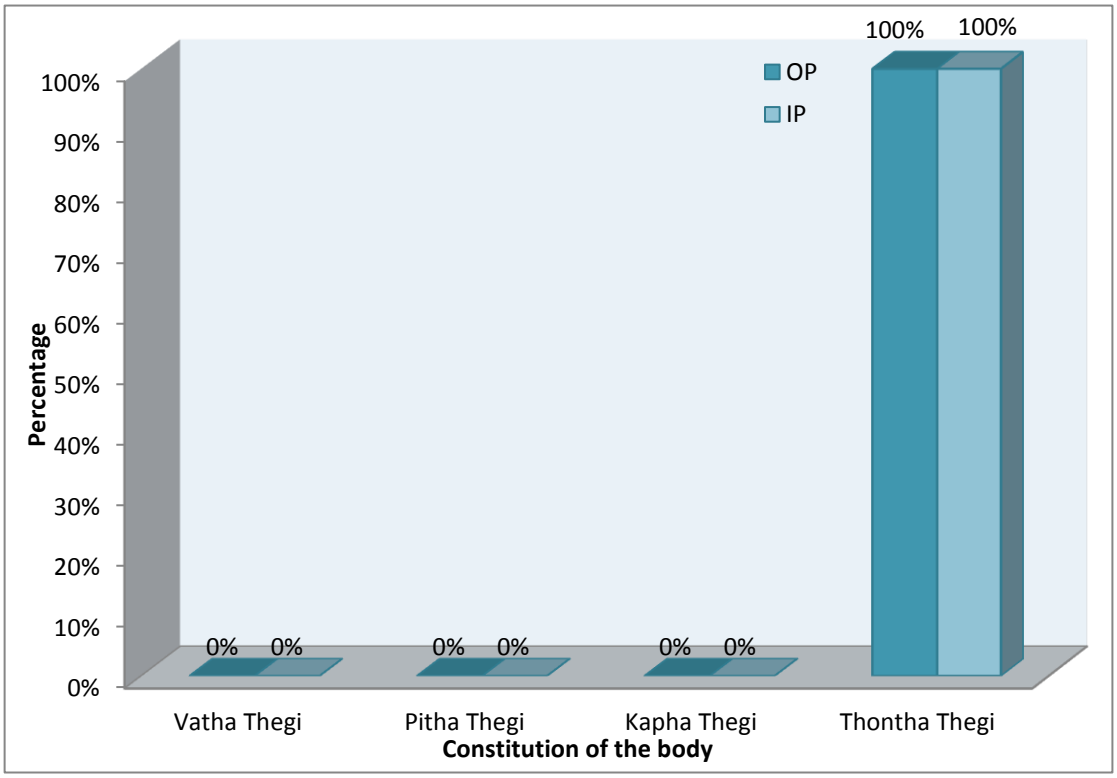
Sl. No.	Constitution of the body	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Vatha Thegi	-	-	-	-
2.	Pitha Thegi	-	-	-	-
3.	Kapha Thegi	-	-	-	-
4.	Thontha Thegi	20	100%	20	100%
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, 100% were Thontha Thegi.

Among 20 In patients, 100% were Thontha Thegi.

FIGURE-4

CONSTITUTION OF THE BODY



5. GUNAM:

Table-5 Illustrates the Gunam and its percentage.

TABLE-5

GUNAM

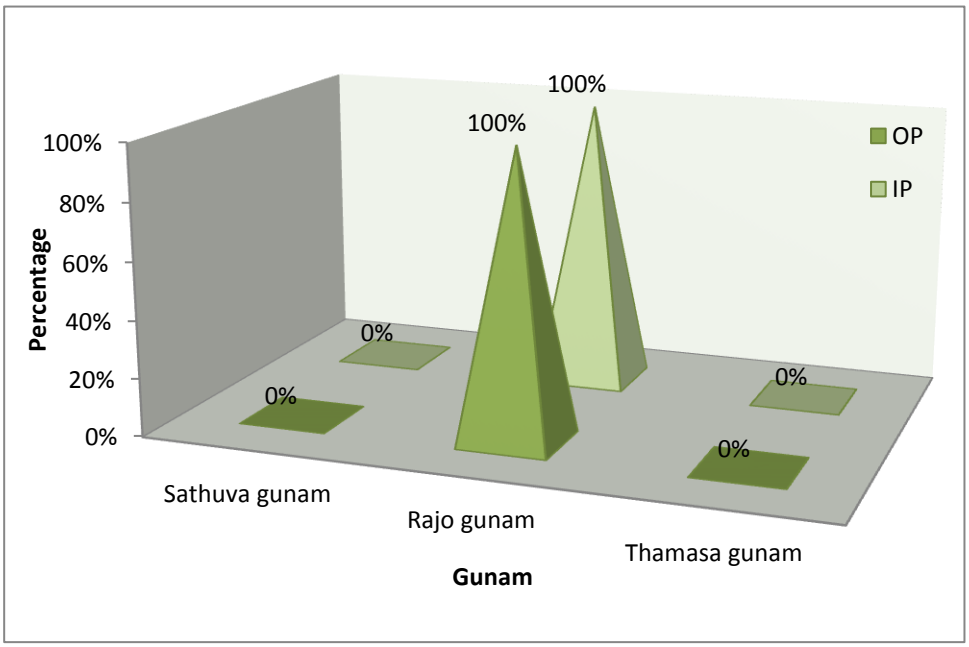
Sl. No.	Gunam	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Sathuva gunam	-	-	-	-
2.	Rajo gunam	20	100%	20	100%
3.	Thamasa gunam	-	-	-	-
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, 100% had Rajo Gunam.

Among 20 In patients, 100% had Rajo Gunam.

FIGURE-5

GUNAM



6. RELIGION DISTRIBUTION:

Table-6 Illustrates the Religion Distribution and its percentage.

TABLE-6

RELIGION DISTRIBTUTION

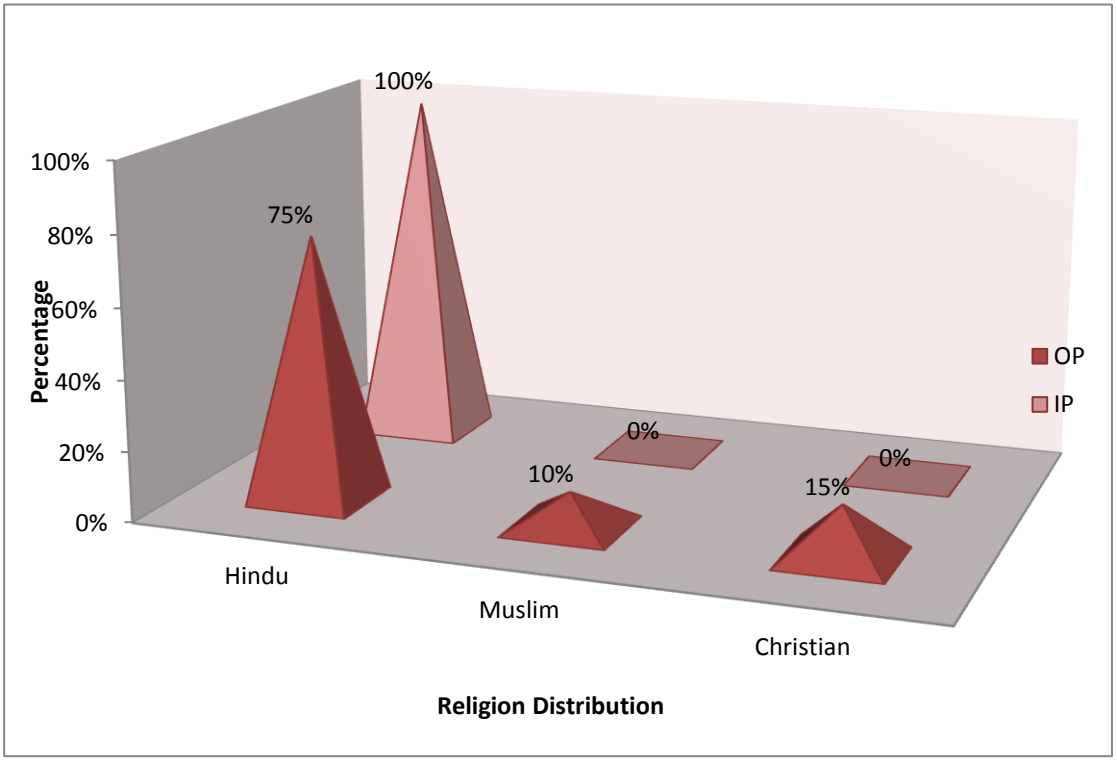
Sl. No.	Religion Distribution	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Hindu	15	75%	20	100%
2.	Muslim	2	10%	-	-
3.	Christian	3	15%	-	-
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, 75% were Hindu, 10% were Muslim and 15% were Christian.

Among 20 In patients, 100% were Hindu.

FIGURE-6

RELIGION DISTRIBTUTION



7. PARUVA KAALAM:

Table-7 Illustrates the Paruva Kaalam and its percentage.

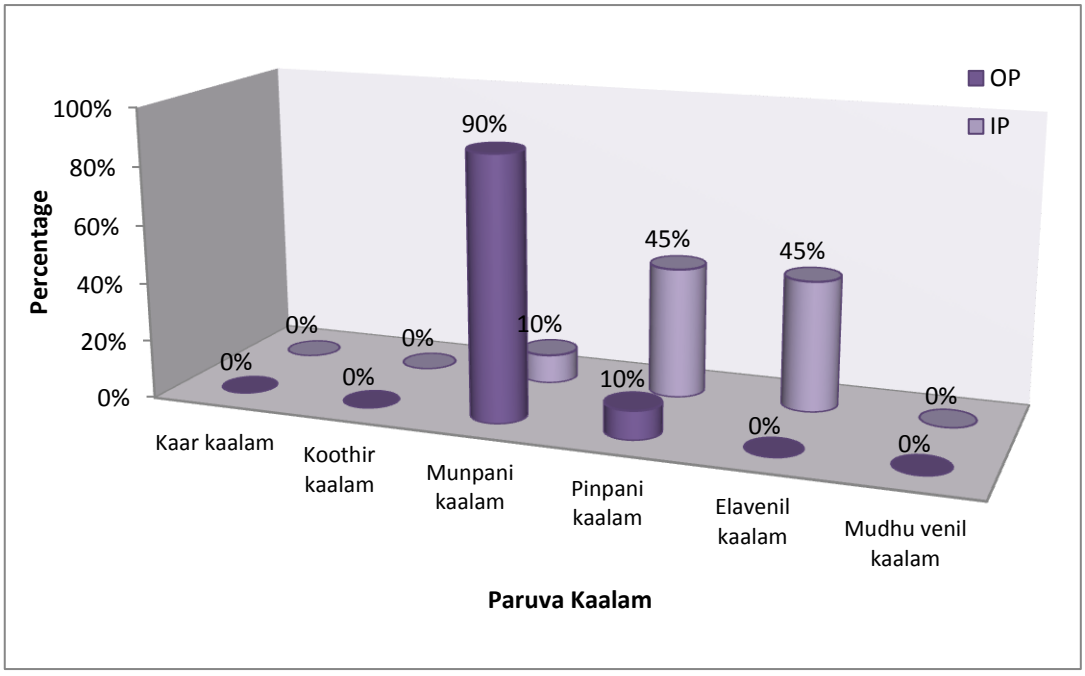
TABLE-7

PARUVA KAALAM

Sl. No.	Paruva Kaalam	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Kaar kaalam	-	-	-	-
2.	Koothir kaalam	-	-	-	-
3.	Munpani kaalam	18	90%	2	10%
4.	Pinpani kaalam	2	10%	9	45%
5.	Elavenil kaalam	-	-	9	45%
6.	Mudhu venil kaalam	-	-	-	-
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, 90% cases were affected in Munpani kaalam, 10% cases were affected in Pinpani kaalam. Among 20 IP patients, 10% cases were affected in Munpani kaalam, 45% cases were affected in Pinpani kaalam and 45% cases were affected in Elavenil kaalam.

FIGURE-7
PARUVA KAALAM



8. THINAI:

Table-8 Illustrates the Thinai and its percentage.,

TABLE-8

THINAI

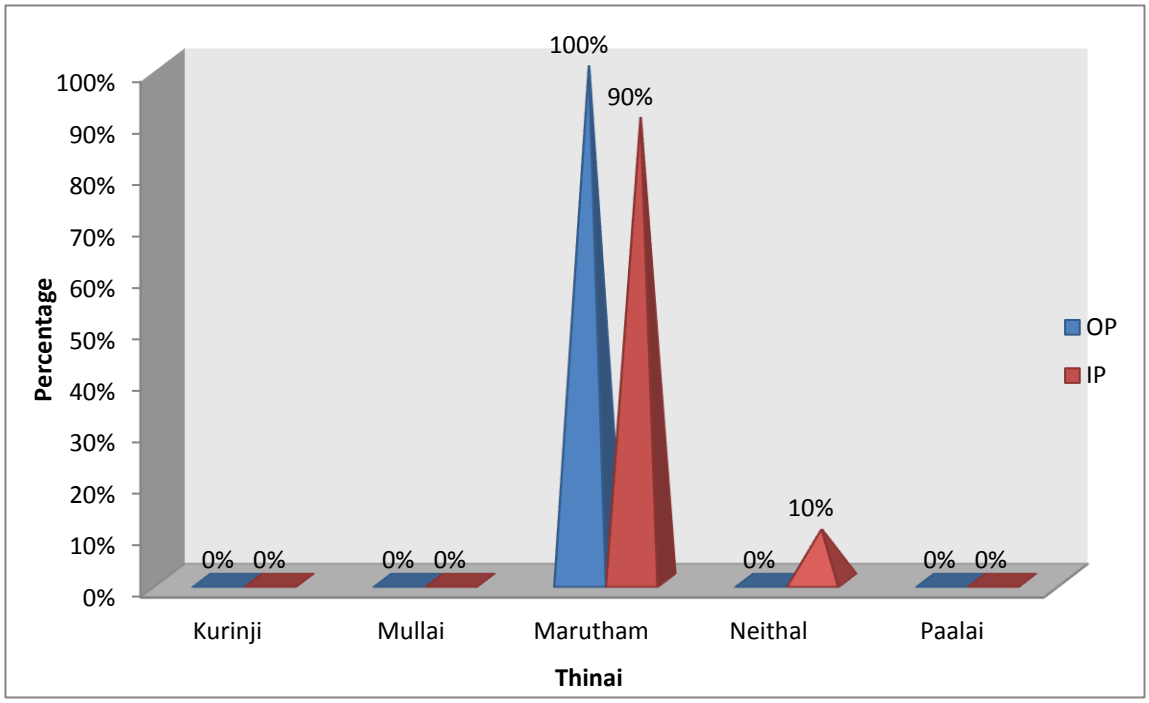
Sl. No.	Thinai	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Kurinji	-	-	-	-
2.	Mullai	-	-	-	-
3.	Marutham	20	100%	18	90%
4.	Neithal	-	-	2	10%
5.	Paalai	-	-	-	-
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, 100% cases were in Marutham.

Among 20 In patients, 90% cases were in Marutham and 10% cases were in Neithal.

FIGURE-8

THINAI



9. OCCUPATION:

Table-9 Illustrates the Occupation and its percentage.

TABLE-9

OCCUPATION

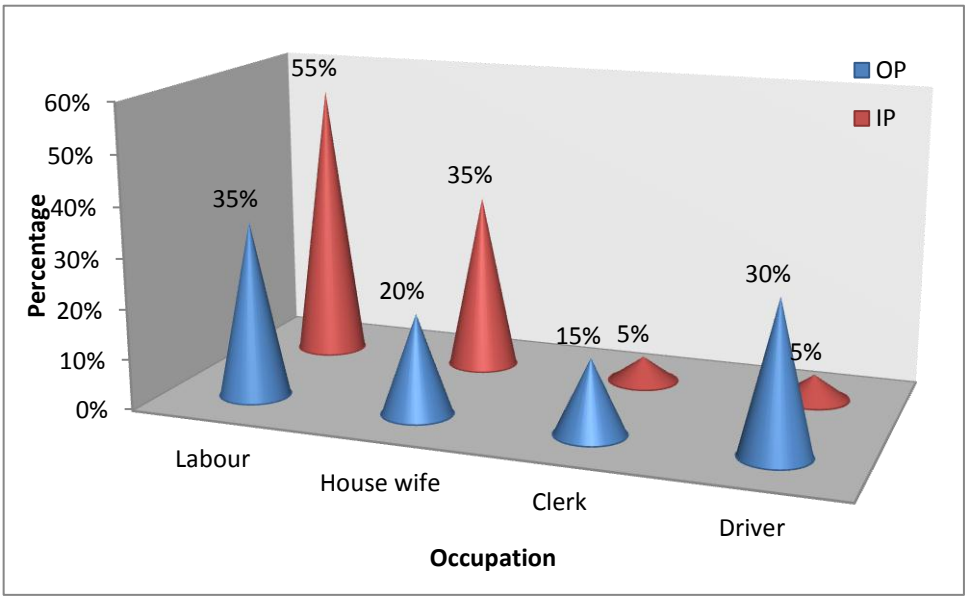
Sl. No.	Occupation	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Labour	7	35%	11	55%
2.	House wife	4	20%	7	35%
3.	Clerk	3	15%	1	5%
4.	Driver	6	30%	1	5%
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, 35% cases were Labours, 20% were House Wife, 15% were Clerk and 30% were Driver.

Among 20 In patients, 55% cases were Labours, 35% cases were House Wife, 5% cases were Clerk and 5% cases were Driver.

FIGURE-9

OCCUPATION



10. FOOD HABITS:

Table-10 Illustrates the Food Habits and its percentage.

TABLE-10

FOOD HABITS

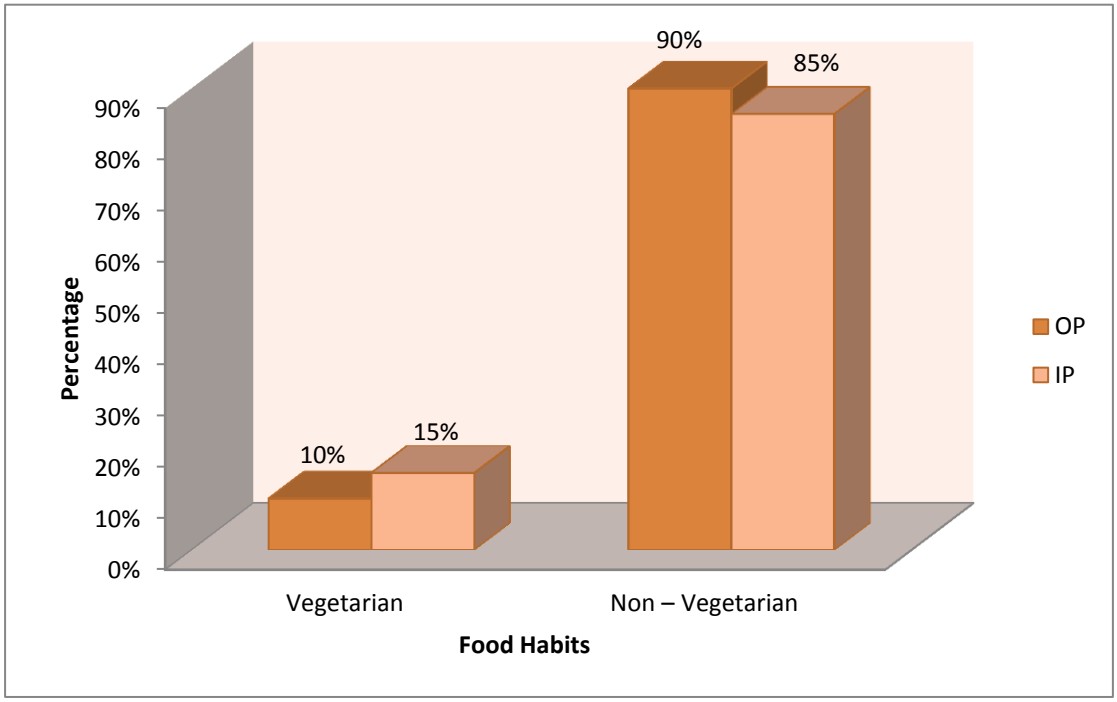
Sl. No.	Food Habits	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Vegetarian	2	10%	3	15%
2.	Non – Vegetarian	18	90%	17	85%
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, 10% cases were Vegetarian and 90% cases were Non – Vegetarian.

Among 20 In patients, 15% cases were Vegetarian and 85% cases were Non – Vegetarian.

FIGURE-10

FOOD HABITS



11. SOCIO-ECONOMICAL STATUS:

Table-11 Illustrates the Socio-Economical Status and its percentage.

TABLE-11

SOCIO – ECONOMICAL STATUS

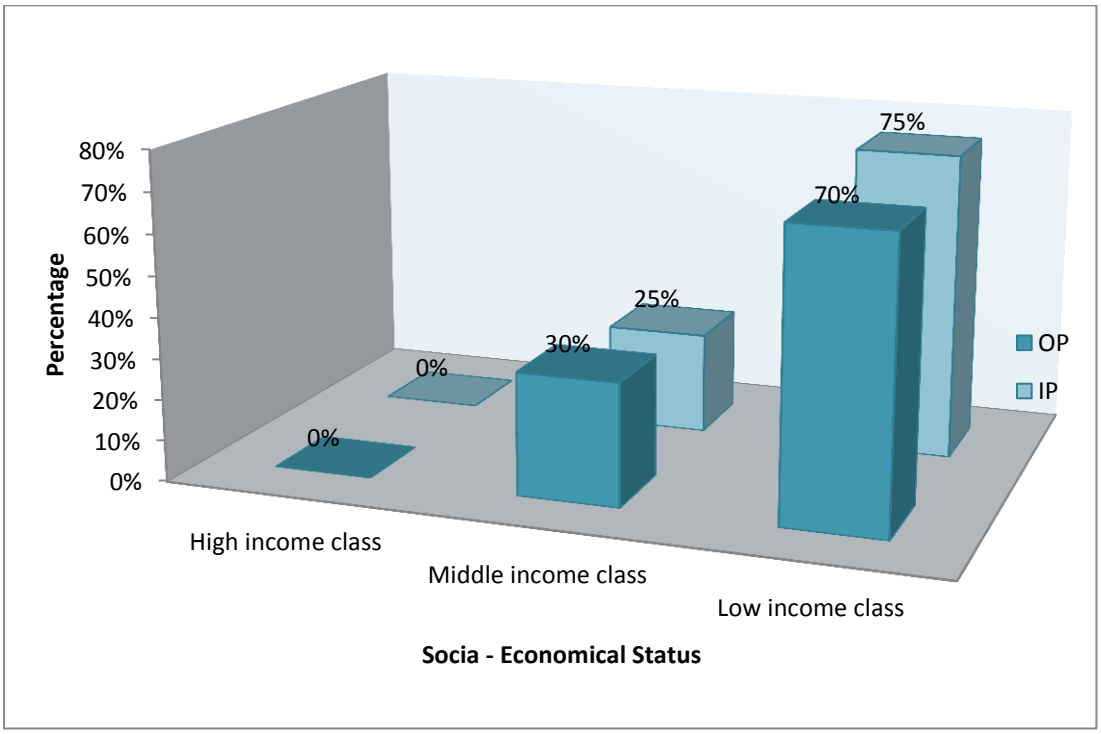
Sl. No.	Socio-Economical Status	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	High income class	-	-	-	-
2.	Middle income class	6	30%	5	25%
3.	Low income class	14	70%	15	75%
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, 30% cases were Middle income class and 70% cases were Low income class.

Among 20 In patients, 25% cases were Middle income class and 75% cases were Low income class.

FIGURE-11

SOCIO – ECONOMICAL STATUS



12. AETIOLOGICAL FACTORS:

Table-12 Illustrates the Aetiological Factors and its percentage.

TABLE-12

AETOLOGICAL FACTORS

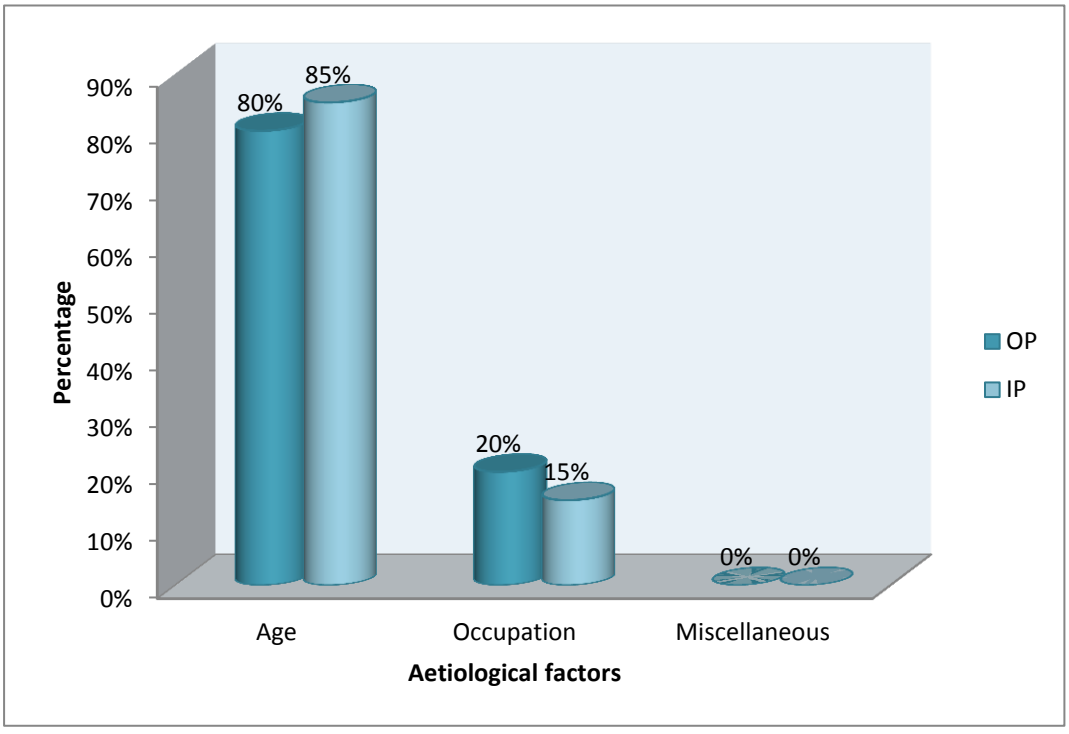
Sl. No.	Aetiological Factors	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Age	16	80%	17	85%
2.	Occupation	4	20%	3	15%
3.	Miscellaneous	-	-	-	-
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, 80% of the cases were due to Age factor and 20% of the cases were due to Occupational.

Among 20 In patients, 85% of the cases were due to Age factor and 15% of the cases were due to Occupational.

FIGURE-12

AETIOLOGICAL FACTORS



13. MODE OF ONSET:

Table-13 Illustrates the Mode of Onset and its percentage.

TABLE-13

MODE OF ONSET

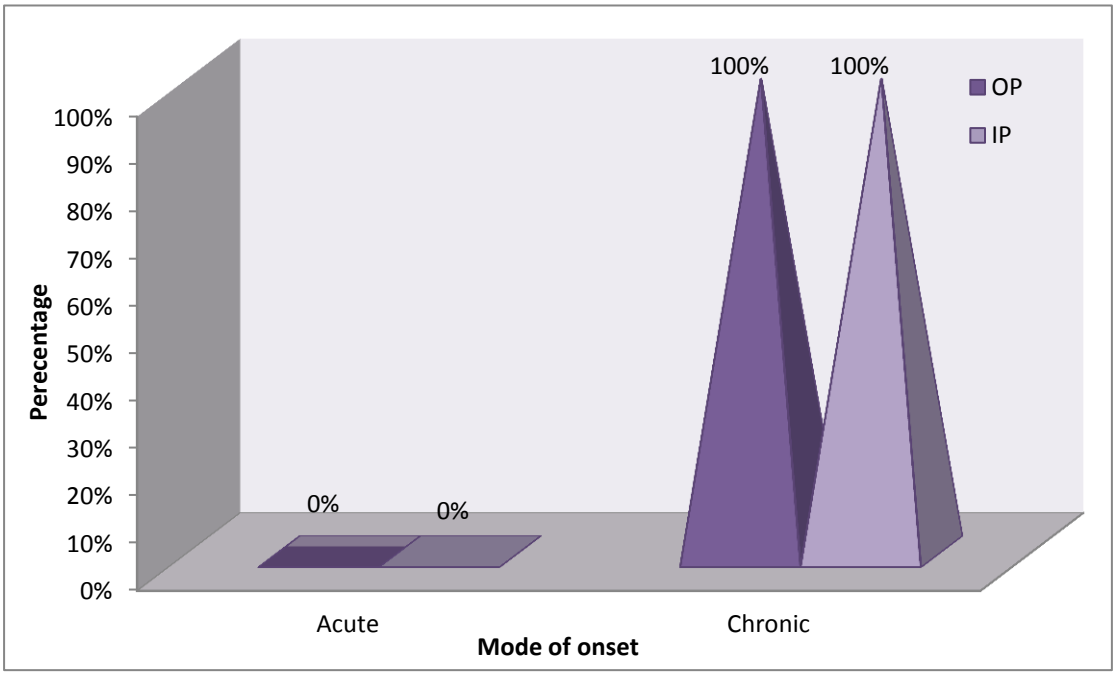
Sl. No.	Mode of Onset	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Acute	-	-	-	-
2.	Chronic	20	100%	20	100%
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, 100% of the cases were Chronic onset.

Among 20 In patients, 100% of the cases were Chronic onset.

FIGURE-13

MODE OF ONSET



14. DURATION OF ILLNESS:

Table-14 Illustrates the Duration of Illness and its percentage.

TABLE-14

DURATION OF ILLNESS

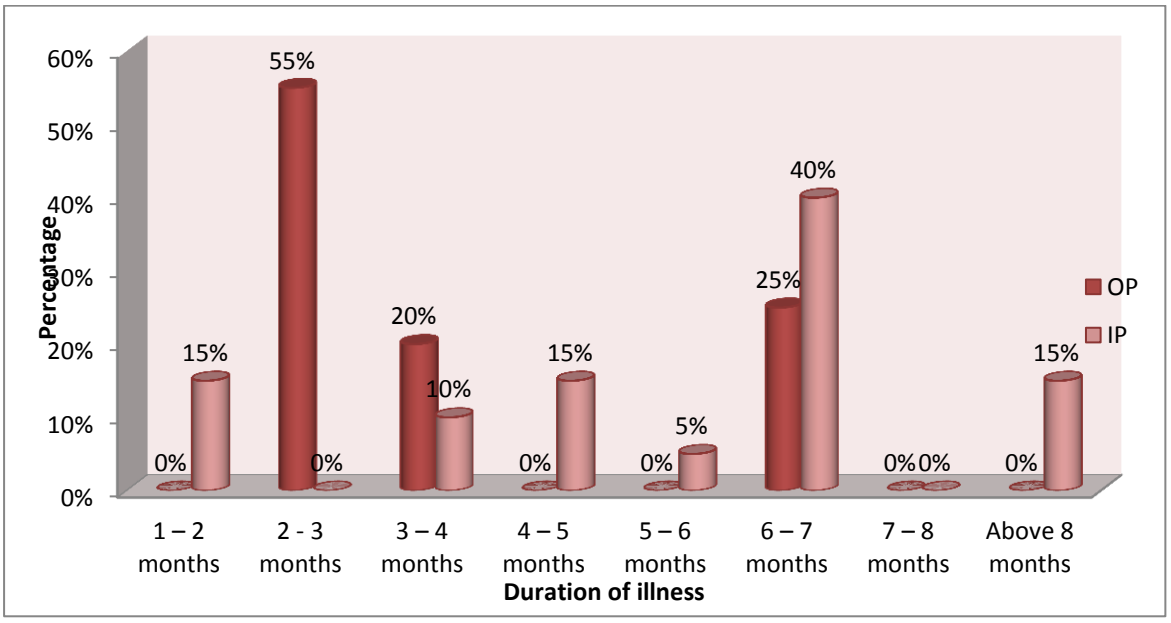
Sl. No.	Duration of Illness	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	1 – 2 months	-	-	3	15%
2.	2 - 3 months	11	55%	-	-
3.	3 – 4 months	4	20%	2	10%
4.	4 – 5 months	-	-	3	15%
5.	5 – 6 months	-	-	1	5%
6.	6 – 7 months	5	25%	8	40%
7.	7 – 8 months	-	-	-	-
8.	Above 8 months	-	-	3	15%
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, Duration of Illness is 55% in 2 – 3 months, 20% in 3 – 4 months and 25% in 6 – 7 months.

Among 20 In patients, Duration of Illness is 15% in 1-2 months, 10% in 3 – 4 months, 15% in 4 – 5 months, 5 % in 5 – 6 months, 40% in 6 – 7 months and 15% in above 8 months.

FIGURE-14

DURATION OF ILLNESS



15. CLINICAL MANIFESTATION:

Table-15 Illustrates the Clinical Manifestation and it percentage.

TABLE-15

CLINICAL MANIFESTATION

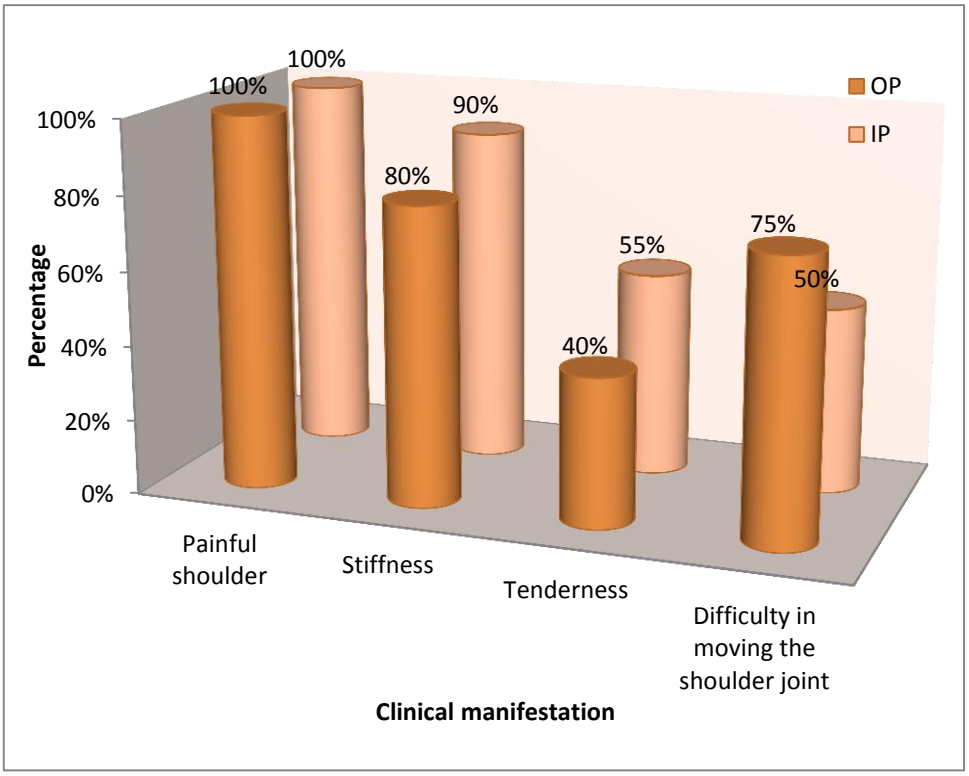
Sl. No.	Clinical manifestation	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Painful shoulder	20	100%	20	100%
2.	Stiffness	16	80%	18	90%
3.	Tenderness	8	40%	11	55%
4.	Difficulty in moving the shoulder joint	15	75%	10	50%

Among 20 Out patients, 100% of the cases had Painful shoulder, 80% of the cases had Stiffness, 40% of the cases had Tenderness, and 75% of the cases had Difficulty in moving the shoulder joint.

Among 20 In patients, 100% of the cases had Pain in their shoulder, 90% of the cases had Stiffness, 55% of the cases had Tenderness, and 50% of the cases had Difficulty in moving the shoulder joint.

FIGURE-15

CLINICAL MANIFESTATION



16. GNANENDRIUM:

Table-16 Illustrates the Gnanendrium and its percentage.

TABLE-16

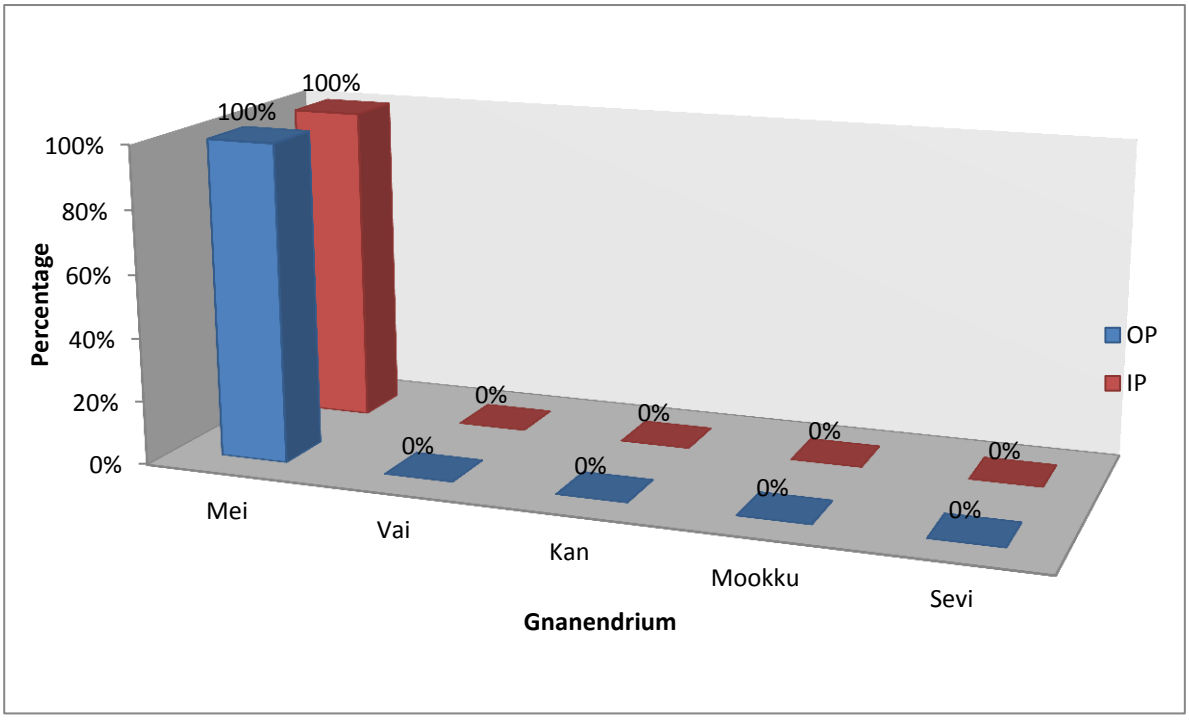
GNANENDRIUM

Sl. No.	Gnanendrium	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Mei	20	100%	20	100
2.	Vai	-	-	-	-
3.	Kan	-	-	-	-
4.	Mookku	-	-	-	-
5.	Sevi	-	-	-	-
	Total	**20**	**100%**	**20**	**100%**

In both Out patients and In patients, 100% Mei was affected.

FIGURE-16

GNANENDRIUM



17. KANMENDRIUM:

Table-17 Illustrates the Kanmendrium and its percentage.

TABLE-17

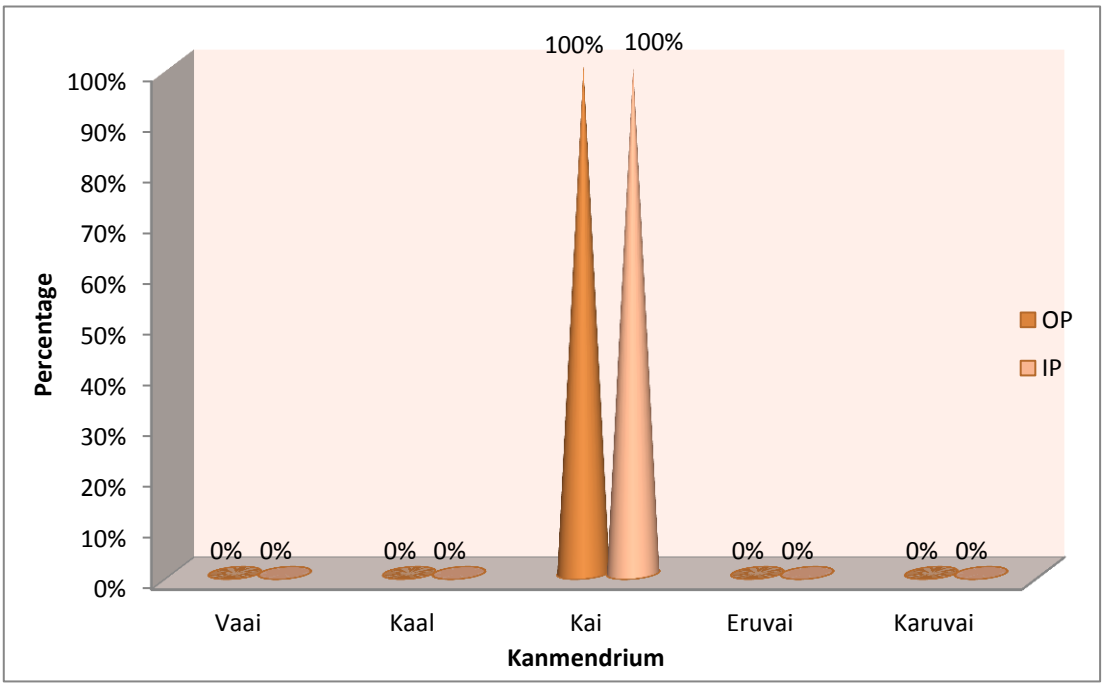
KANMENDRIUM

Sl. No.	Kanmendrium	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Vaai	-	-	-	-
2.	Kaal	-	-	-	-
3.	Kai	20	100%	20	100%
4.	Eruvai	-	-	-	-
5.	Karuvai	-	-	-	-
	Total	**20**	**100%**	**20**	**100%**

In both Out patients and In patients, 100% Kai was affected.

FIGURE-17

KANMENDRIUM



18. CONDITIONS OF MUKKUTRAM:

Table-18 (a). Illustrates the Condition in Vatham and its percentage.

TABLE-18 (a)

CONDITION IN VATHAM

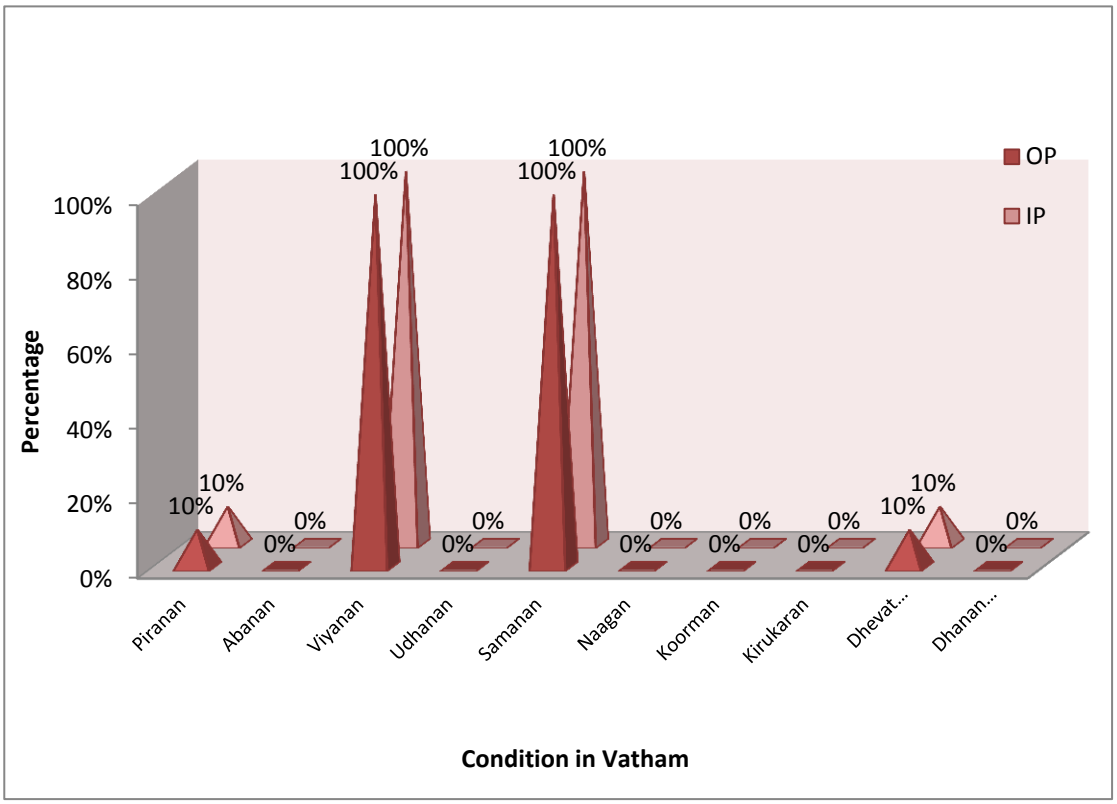
Sl. No.	Condition in Vatham	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Piranan	2	10%	2	10%
2.	Abanan	-	-	-	-
3.	Viyanan	20	100%	20	100%
4.	Udhanan	-	-	-	-
5.	Samanan	20	100%	20	100%
6.	Naagan	-	-	-	-
7.	Koorman	-	-	-	-
8.	Kirukaran	-	-	-	-
9.	Dhevathathan	2	10%	2	10%
10.	Dhananjeyan	-	-	-	-

Among 20 Out patients, 10% of the cases were affected in Piranan, 100% of the cases affected in Viyanan, 100% of the cases were affected in Samanan and 10% of the cases were affected in Dhevathathan.

Among 20 In patients, 10% of the cases were affected in Piranan, 100% of the cases affected in Viyanan, 100% of the cases were affected in Samanan and 10% of the cases were affected in Dhevathathan.

FIGURE-18 (a)

CONDITION IN VATHAM



18 (b). CONDITIONS OF PITHAM:

Table-18 (b) Illustrates the Condition in Pitham and its percentage.

TABLE-18 (b)

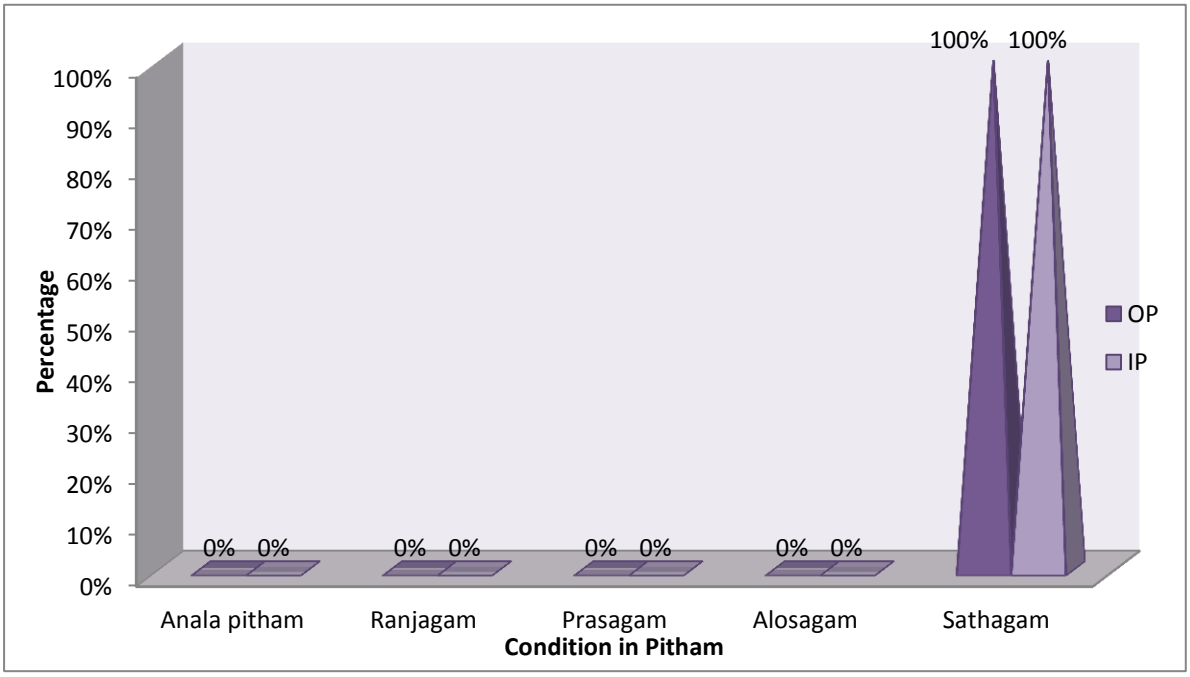
CONDITION IN PITHAM

Sl. No.	Condition in Pitham	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Anala pitham	-	-	-	-
2.	Ranjagam	-	-	-	-
3.	Prasagam	-	-	-	-
4.	Alosagam	-	-	-	-
5.	Sathagam	20	100%	20	100%

Among 20 Out patients, 100% of the cases were affected in Sathagam and Among 20 In Patients 100% of the cases were affected in Sathagam.

FIGURE-18 (b)

CONDITION IN PITHAM



18 (c). CONDITIONS IN KAPHAM:

Table-18 (c) Illustrates the Condition in Kapham.

TABLE-18 (c)

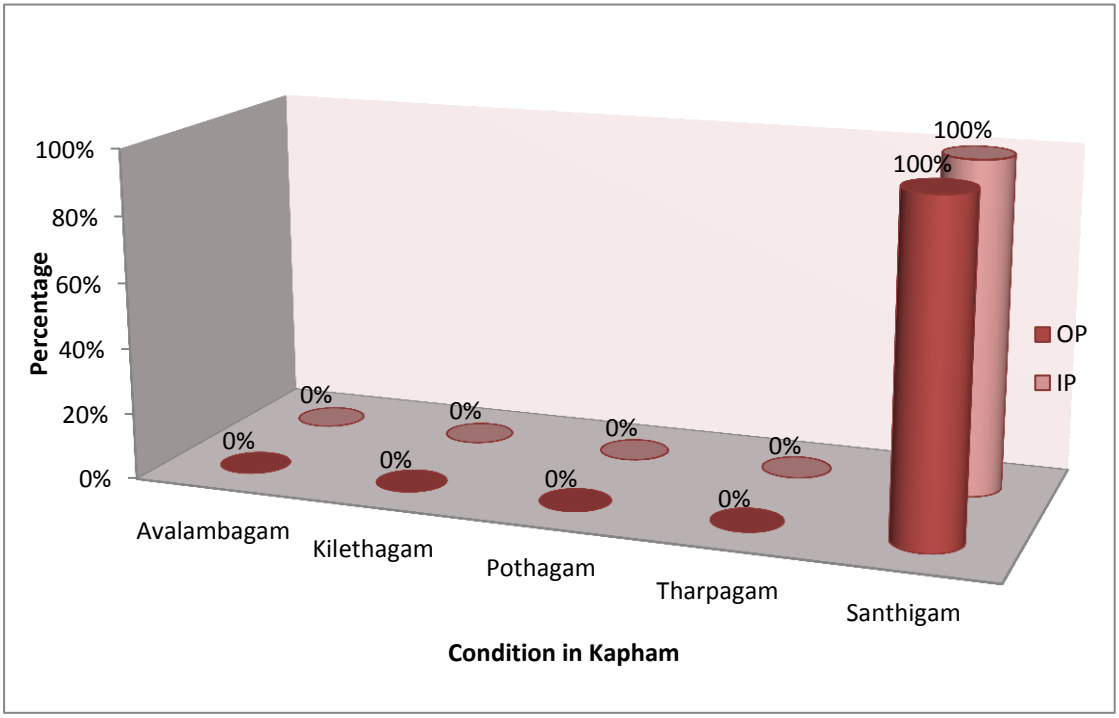
CONDITION IN KAPHAM

Sl. No.	Condition in Kapham	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Avalambagam	-	-	-	-
2.	Kilethagam	-	-	-	-
3.	Pothagam	-	-	-	-
4.	Tharpagam	-	-	-	-
5.	Santhigam	20	100%	20	100%

Among 20 Out patients, 100% of the cases were affected in Santhigam and Among 20 In Patients 100% of the cases were affected in Santhigam.

FIGURE-18 (c)

CONDITION IN KAPHAM



19. INVOLVEMENT OF UDAL THATHUKKAL:

Table-19 Illustrates the involvement of Udal thathukkal and its percentage.

TABLE-19

INVOLVEMENT OF UDAL THATHUKKAL

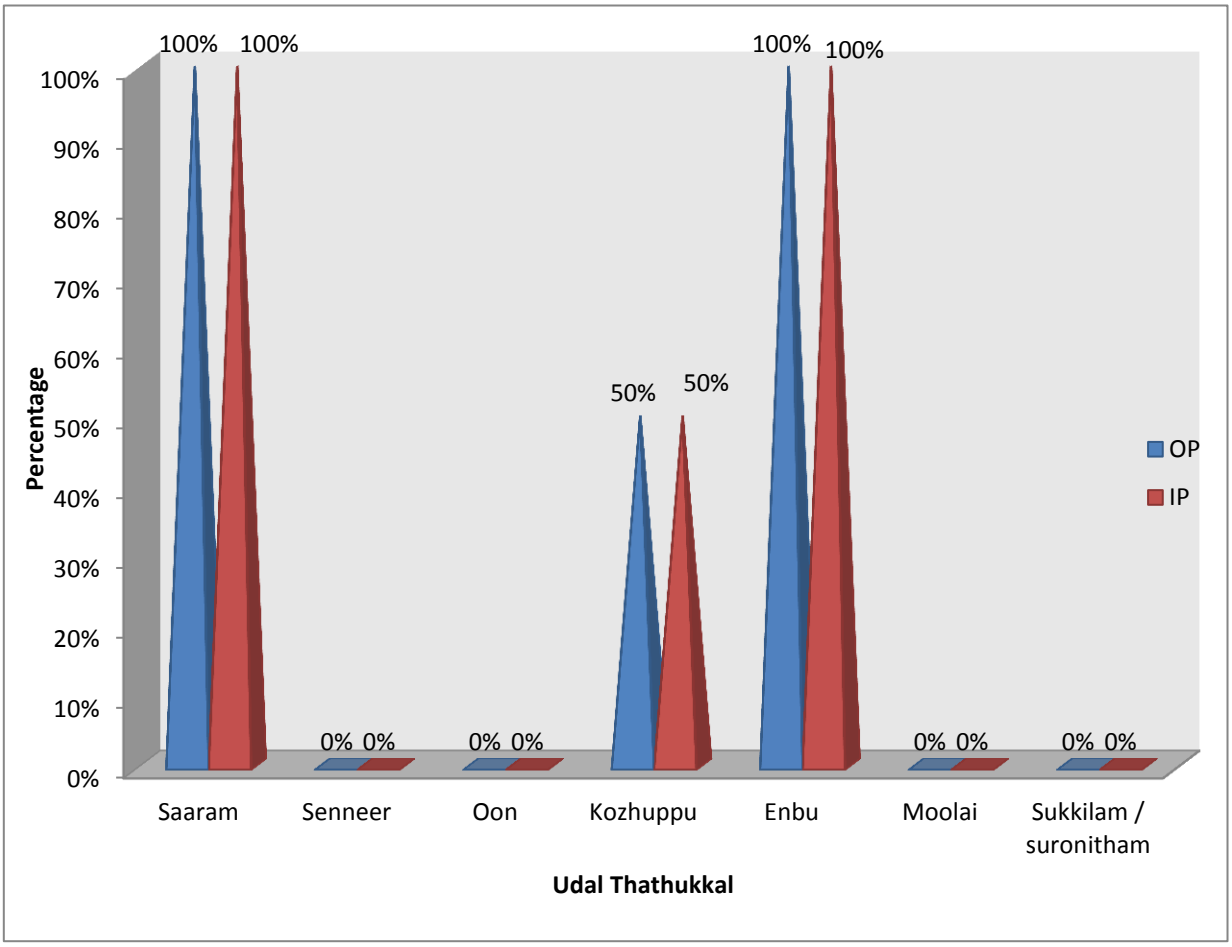
Sl. No.	Udal Thathukkal	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Saaram	20	100%	20	100%
2.	Senneer	-	-	-	-
3.	Oon	-	-	-	-
4.	Kozhuppu	10	50%	10	50%
5.	Enbu	20	100%	20	100%
6.	Moolai	-	-	-	-
7.	Sukkilam / suronitham	-	-	-	-

Among 20 Out patients, 100% of the cases were affected in Saaram, 50% of the cases were affected in Kozhuppu and 100% of the cases were affected in Enbu.

Among 20 In patients, 100% of the cases were affected in Saaram, 50% of the cases were affected in Kozhuppu and 100% of the cases were affected in Enbu.

FIGURE-19

INVOLVEMENT OF UDAL THATHUKKAL



20. CONDITIONS OF ENVAGAI THERVUGAL:

Table-20 Illustrates the conditions of Envagai Thervugal and its percentage.

TABLE-20

CONDITIONS OF ENVAGAI THERVUGAL

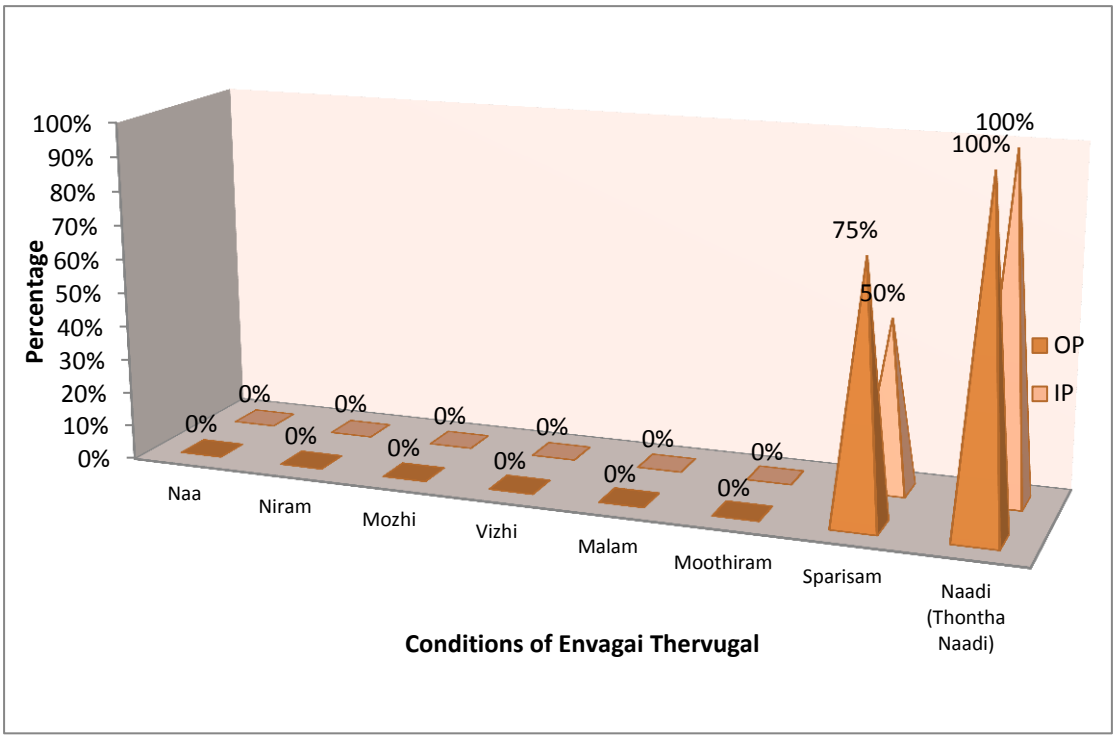
Sl. No.	Envagai Thervugal	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Naa	-	-	-	-
2.	Niram	-	-	-	-
3.	Mozhi	-	-	-	-
4.	Vizhi	-	-	-	-
5.	Malam	-	-	-	-
6.	Moothiram	-	-	-	-
7.	Sparisam	15	75%	10	50%
8.	Naadi (Thontha Naadi)	20	100%	20	100%

Among 20 Out patients, 75% of the cases were affected in Sparisam, and 100% of the cases had Thontha Naadi.

Among 20 In patients, 75% of the cases were affected in Sparisam, and 100% of the cases had Thontha Naadi.

FIGURE-20

CONDITIONS OF ENVAGAI THERVUGAL



21. NAADI:

Table-21 Illustrates the Naadi and its percentage.

TABLE-21

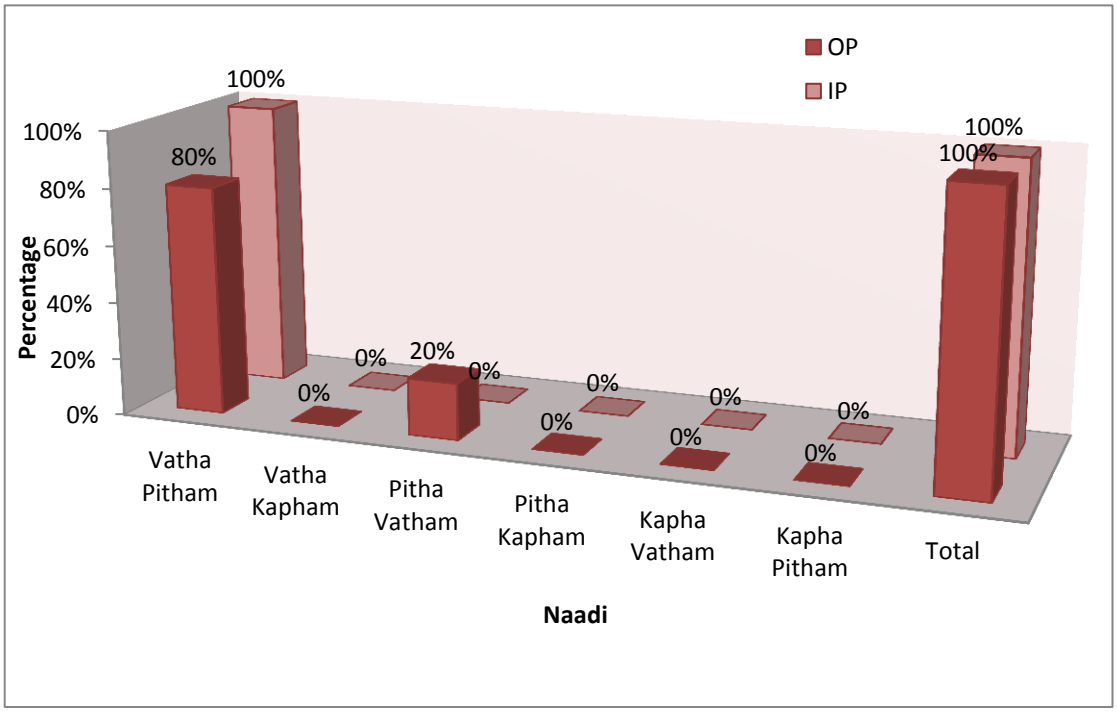
NAADI

Sl. No.	Naadi	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Vatha Pitham	16	80%	20	100%
2.	Vatha Kapham	-	-	-	-
3.	Pitha Vatham	4	20%	-	-
4.	Pitha Kapham	-	-	-	-
5.	Kapha Vatham	-	-	-	-
6.	Kapha Pitham	-	-	-	-
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients, 80% of the cases were Vatha Pitham and 20% of the cases were Pitha Vatham. Among 20 In patients, 100% of the cases were Vatha Pitham.

FIGURE-21

NAADI



22. NEER KURI

Table-22 Illustrates the Neer Kuri and its percentage.

TABLE-22

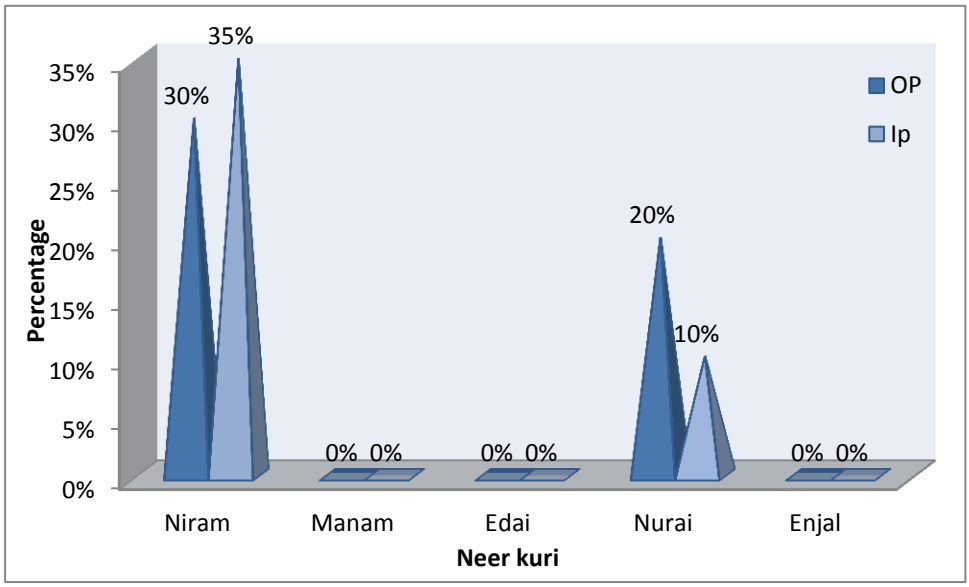
NEER KURI

Sl. No.	Neer kuri	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Niram	6	30%	7	35%
2.	Manam	-	-	-	-
3.	Edai	-	-	-	-
4.	Nurai	4	20%	2	10%
5.	Enjal	-	-	-	-

Among 20 Out patients 30% of the cases were affected in Niram and 20% cases of the cases were affected in Nurai. Among 20 In patients 35% of the cases were affected in Niram and 10% of the cases were affected in Nurai.

FIGURE-22

NEER KURI



23. NEI KURI

Table-22 Illustrates the Neikuri and its percentage.

TABLE-23

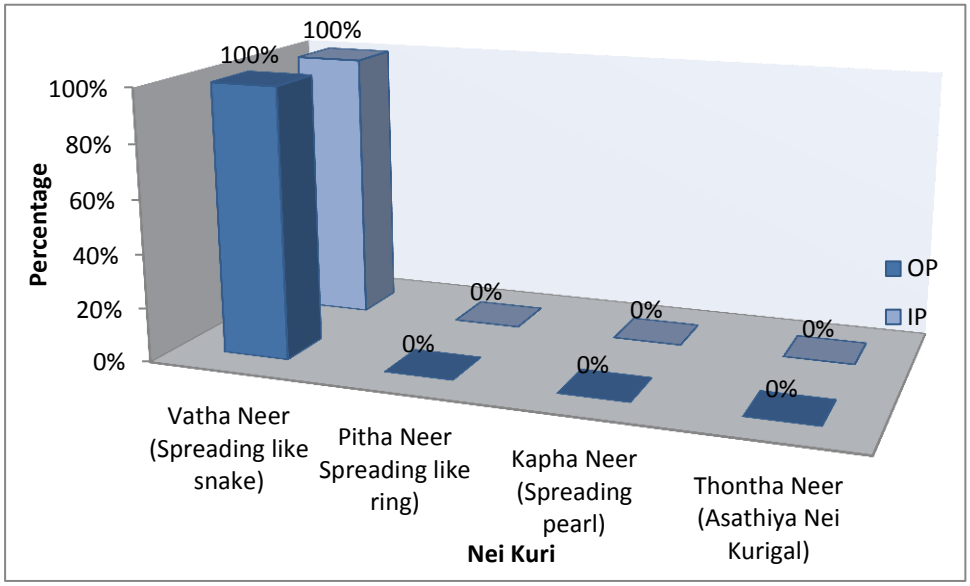
NEI KURI

Sl. No.	Nei kuri	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Vatha Neer (Spreading like snake)	20	100%	20	100%
2.	Pitha Neer Spreading like ring)	-	-	-	-
3.	Kapha Neer (Spreading pearl)	-	-	-	-
4.	Thontha Neer (Asathiya Nei Kurigal)	-	-	-	-
	Total	**20**	**100%**	**20**	**100%**

Among 20 Out patients and 20 In patients 100% of the cases were vatham.

FIGURE-23

NEI KURI



24. ASSESSMENT OF OUTCOME;

Table-24 Illustrates the pain assessment scale and its percentage.

TABLE-24

ASSESSMENT OF OUTCOME

Sl. No.	Pain scale	Before Treatment				After Treatment			
		Out Patients (OP)		In Patients (IP)		Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)	No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	0 – 19	12	60%	2	10%	11	55%	2	10%
2.	20 – 29	5	25%	3	15%	5	25%	2	10%
3.	30 – 39	3	15%	2	10%	4	20%	2	10%
4.	40 – 48	0	0%	13	65%	0	0	0	0%

Assessment of out come:

Oxford shoulder score:

0-19 → indicate severe shoulder arthritis

20-29 → indicate moderate to severe

30-39 → indicate middle to moderate

40-48 → indicate satisfactory joint function

Ref: F. Younis, J.Sultan, S.Dire, P.J. Hughes the range of the oxford shoulder score in the asymptomatic population , Vol.8, Page No.93, Edition Nov.2011.

Before Treatment:

Pain score	OP	IP
0-19	60%	55%
20-29	25%	25%
30-39	15%	20%
40-48	0%	0%

High incidence of outcome is reported in the pain score range between 0-19.

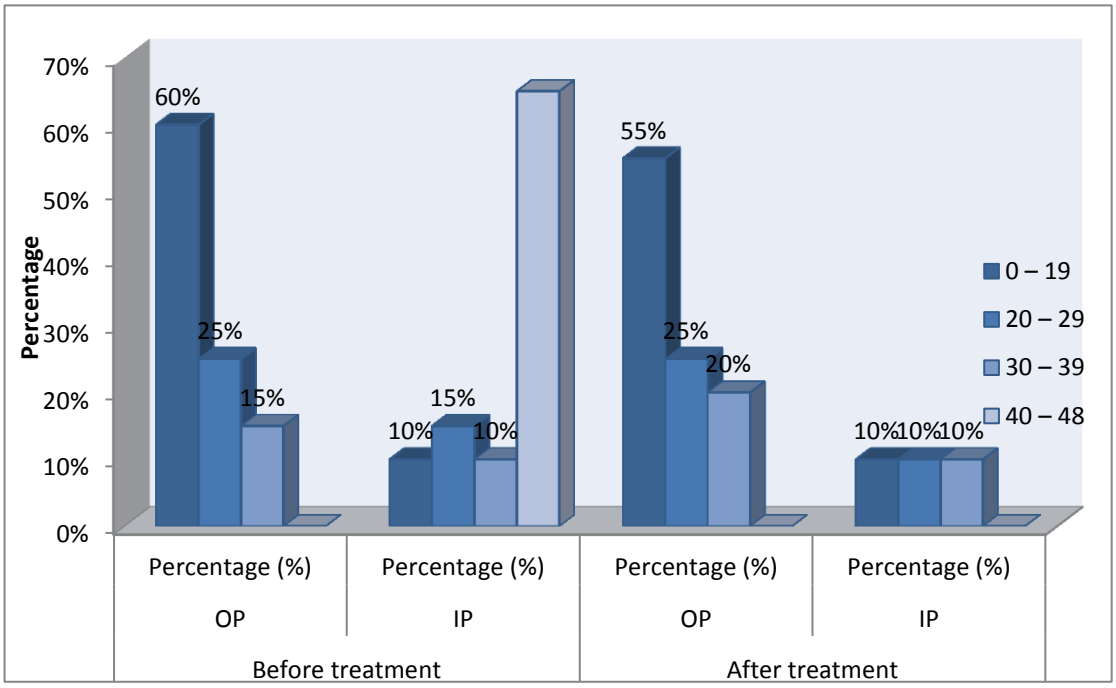
After Treatment:

Pain score	OP	IP
0-19	10%	10%
20-29	15%	10%
30-39	10%	10%
40-48	65%	70%

High incidence of outcome is reported in the pain score range between 40-48.

FIGURE-24

ASSESSMENT OF OUTCOME



25. GRADATION OF RESULTS:

Table-25 Illustrates the pain Gradation Results and its percentage.

TABLE-25

GRADATION OF RESULTS

Sl. No.	Results	Out Patients (OP)		In Patients (IP)	
		No. of Cases	Percentage (%)	No. of Cases	Percentage (%)
1.	Improve	13	65%	14	70%
2.	Moderately improved	4	20%	4	20%
3.	Not improved	3	15%	2	10%
	Total	**20**	**100%**	**20**	**100%**

Among In patients, 65% of cases were Improved, 20% of cases were Moderately improved and 15% of cases were Not improved.

Among Out patients, 70% of cases were Improved, 20% of cases were Moderately improved and 10% of cases were Not improved.

FIGURE-25

GRADATION OF RESULTS

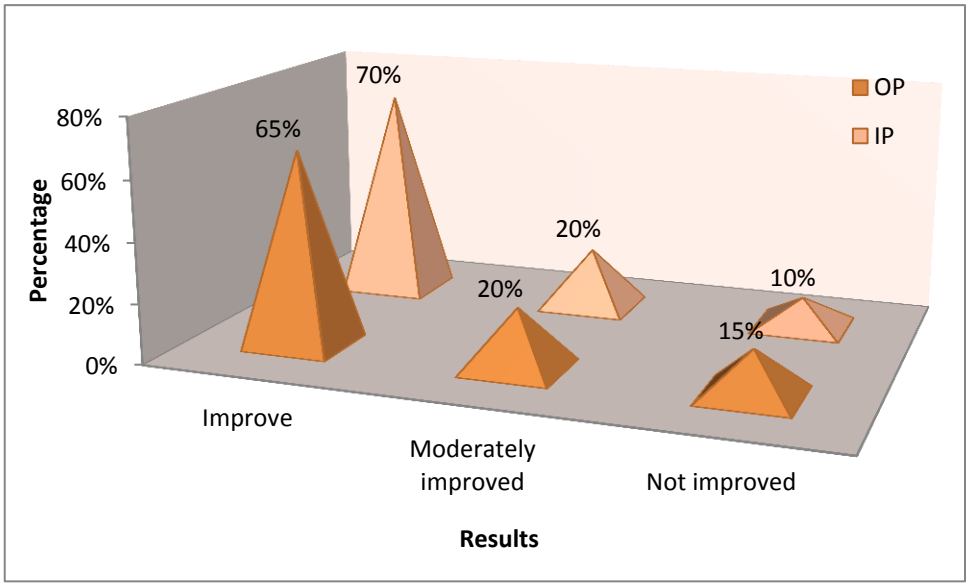


TABLE-26 LABORATORY INVESTIGATION

a). Out Patients

Sl. No.	Out Patient No.	HAEMOTOLOGICAL REPORT														BIO-CHEMICAL ANALYSIS						URINE ANALYSIS					
		BEFORE TREATMENT							AFTER TREATMENT							BEFORE TREATMENT			AFTER TREATMENT			BEFORE TREATMENT			AFTER TREATMENT		
		TC	DC			ESR (mm)		Hb% (gms)	TC	DC			ESR (mm)		Hb% (gms)	Sugar	Urea	Cholesterol	Sugar	Urea	Cholesterol	Albumin	Sugar	Dep- Epi. cells / Pus cells	Albumin	Sugar	Dep- Epi cells / Pus cells
			P	L	E	½ Hr.	1 Hr.			P	L	E	½ Hr.	1 Hr.													
1.	8729	8600	64	34	5	10	12	11.40	8400	62	36	4	8	10	11.40	212	17	144	210	19	146	NIL	NIL	NAD	NIL	NIL	NAD
2.	9171	8300	61	37	3	14	18	10.40	8200	63	34	3	7	18	10.40	173	14	149	170	12	146	NIL	NIL	NAD	NIL	NIL	NAD
3.	9236	8400	63	35	2	12	20	12.60	8300	60	32	2	12	12	12.60	179	20	188	176	18	182	NIL	NIL	NAD	NIL	NIL	NAD
4.	9998	8800	66	30	4	10	16	11.80	8600	68	36	4	10	18	11.80	192	18	183	190	16	180	NIL	NIL	NAD	NIL	NIL	NAD
5.	10048	8600	70	26	4	12	16	10.80	8800	72	24	4	14	12	10.80	182	16	167	180	18	164	NIL	Trace	1-2 pus cells	NIL	NIL	NAD
6.	10970	8500	68	28	5	15	20	12.20	8600	66	30	5	6	18	12.20	180	22	130	176	20	128	NIL	NIL	NAD	NIL	NIL	NAD
7.	11199	7800	60	36	4	10	14	11.60	7600	64	34	4	14	13	11.60	112	13	168	116	14	162	NIL	NIL	NAD	NIL	NIL	NAD
8.	11248	7600	64	32	3	16	10	12.80	7800	66	36	3	10	18	12.80	234	15	154	230	16	152	NIL	NIL	NAD	NIL	NIL	NAD
9.	11248	8200	56	38	2	9	18	11.20	8400	58	32	2	15	14	11.20	232	17	180	228	15	176	NIL	NIL	NAD	NIL	NIL	NAD
10.	11353	8600	58	40	2	16	20	12.40	8800	56	44	2	7	18	12.40	225	19	182	221	18	180	NIL	NIL	NAD	NIL	NIL	NAD
11.	13655	7500	64	32	6	10	18	12.60	7300	66	28	6	11	6	12.60	144	21	160	142	20	158	NIL	NIL	Few pus cells	NIL	NIL	NAD
12.	14130	7200	66	32	4	8	10	12.80	7400	68	34	4	3	8	12.80	282	23	205	280	22	200	NIL	NIL	NAD	NIL	NIL	NAD
13.	14357	7400	70	28	3	14	18	11.80	7200	64	32	3	4	16	11.80	230	18	174	228	19	172	NIL	NIL	NAD	NIL	NIL	NAD
14.	14763	8000	68	30	2	10	16	11.20	8200	65	34	2	13	18	11.20	216	17	182	214	18	180	NIL	NIL	NAD	NIL	NIL	NAD
15.	14837	8200	66	36	3	16	20	11.80	8400	68	34	3	12	18	11.80	228	20	186	224	19	184	NIL	NIL	NAD	NIL	NIL	NAD
16.	15316	8400	64	32	4	12	14	12.80	8300	62	30	4	9	20	12.80	214	19	172	212	20	170	NIL	NIL	NAD	NIL	NIL	NAD
17.	15387	8700	68	26	5	9	16	10.80	8600	70	28	5	10	16	10.80	220	22	166	218	21	164	NIL	NIL	NAD	NIL	NIL	NAD
18.	15388	8500	64	30	6	13	20	11.60	8400	66	32	6	8	20	11.60	230	24	184	228	23	180	NIL	NIL	NAD	NIL	NIL	NAD
19.	15700	8200	60	34	4	7	14	12.80	8300	64	30	4	11	12	12.80	216	15	168	214	16	170	NIL	NIL	NAD	NIL	NIL	NAD
20.	17605	8800	56	38	2	13	20	11.00	8600	58	36	2	6	16	11.00	222	23	178	220	21	174	NIL	NIL	NAD	NIL	NIL	NAD

TABLE-26 LABORATORY INVESTIGATION
b). In Patients

Sl. No.	In Patient No.	HAEMOTOLOGICAL REPORT														BIO-CHEMICAL ANALYSIS						URINE ANALYSIS					
		BEFORE TREATMENT							AFTER TREATMENT							BEFORE TREATMENT			AFTER TREATMENT			BEFORE TREATMENT			AFTER TREATMENT		
		TC	DC			ESR (mm)		Hb% (gms)	TC	DC			ESR (mm)		Hb% (gms)	Sugar	Urea	Cholesterol	Sugar	Urea	Cholesterol	Albumin	Sugar	Dep- Epi. cells / Pus cells	Albumin	Sugar	Dep- Epi. cells / Pus cells
			P	L	E	½ Hr.	1 Hr.			P	L	E	½ Hr.	1 Hr.													
1.	218	8200	62	34	4	16	18	10.60	8000	64	34	6	10	14	10.80	358	17	192	354	15	190	NIL	NIL	NAD	NIL	NIL	NAD
2.	388	7000	58	40	2	14	16	11.20	7200	58	38	4	8	16	11.20	145	27	149	142	24	146	NIL	NIL	NAD	NIL	NIL	NAD
3.	420	8400	60	38	2	18	30	9.40	9400	58	38	4	10	10	9.90	177	29	262	174	25	260	NIL	NIL	NAD	NIL	NIL	NAD
4.	483	8400	60	36	4	12	14	11.00	8600	62	36	4	8	12	11.40	105	40	196	108	38	194	NIL	NIL	1-2 pus cells	NIL	NIL	NAD
5.	535	8300	60	37	3	14	18	10.20	8400	58	38	4	10	12	10.60	367	26	165	364	24	162	NIL	+++	1-2 pus cells	NIL	NIL	NAD
6.	783	8600	64	33	3	13	18	10.40	8800	60	36	4	6	8	10.60	285	22	163	282	20	160	NIL	NIL	NAD	NIL	NIL	NAD
7.	859	7800	55	40	5	14	18	11.90	7600	55	40	5	8	10	12.20	318	27	140	314	25	138	NIL	+++	Few pus cells	NIL	NIL	NAD
8.	881	7600	56	38	6	15	20	10.40	7400	57	32	6	8	12	10.60	220	22	152	216	20	150	NIL	NIL	NAD	NIL	NIL	NAD
9.	897	7200	62	34	4	14	18	11.20	7000	60	36	4	7	10	11.60	232	21	156	230	18	154	NIL	NIL	NAD	NIL	NIL	NAD
10.	910	8800	60	38	2	18	20	11.80	8600	60	38	2	6	8	12.20	210	18	160	208	16	156	NIL	NIL	NAD	NIL	NIL	NAD
11.	969	7400	62	34	4	17	20	10.80	7500	60	38	4	10	12	11.00	228	22	172	224	20	170	NIL	NIL	NAD	NIL	NIL	NAD
12.	1100	7200	63	32	5	16	18	11.40	7400	62	32	6	8	10	11.60	205	20	158	203	18	160	NIL	NIL	NAD	NIL	NIL	NAD
13.	1116	8600	60	36	4	13	16	10.40	8400	60	36	4	10	12	10.60	216	18	160	214	16	162	NIL	NIL	NAD	NIL	NIL	NAD
14.	1127	8800	62	35	3	15	19	10.60	8600	60	35	5	7	9	10.80	225	17	164	223	15	163	NIL	NIL	NAD	NIL	NIL	NAD
15.	1140	8600	63	35	2	16	15	11.20	8800	62	34	4	10	12	11.40	230	15	162	228	13	160	NIL	NIL	NAD	NIL	NIL	NAD
16.	1149	8400	60	37	2	14	16	11.40	8200	60	42	2	10	12	11.60	218	18	168	216	16	166	NIL	NIL	NAD	NIL	NIL	NAD
17.	1160	8200	63	34	3	18	20	12.20	8400	63	34	3	11	13	12.40	180	21	170	178	20	168	NIL	NIL	NAD	NIL	NIL	NAD
18.	1180	8600	58	38	4	13	16	12.40	8800	58	36	6	6	8	12.60	172	25	172	170	23	170	NIL	NIL	NAD	NIL	NIL	NAD
19.	1221	8300	54	40	3	16	20	10.80	8600	58	30	2	10	12	11.00	186	24	174	184	22	172	NIL	NIL	NAD	NIL	NIL	NAD
20.	1231	8600	54	40	6	16	18	10.80	8400	54	40	6	8	10	11.00	157	19	117	153	17	115	NIL	NIL	NAD	NIL	NIL	NAD

TABLE-27 CASE SUMMARY
(a) OUT PATIENTS

Sl. No.	OP No.	Name	Age / Sex	Treatment starting date	End of the treatment date	Duration of Illness	Treatment with Dose	Total No. of days treated	Radiological findings	Result
1.	8729	Indira	48 / F	27.01.2016	25.02.2016	4 Months	All the cases were treated with Mukkirattai Chooranam 2 gm twice a day with hot water	30	Normal	Good
2.	9171	Boominathan	60 / M	28.01.2016	26.02.2016	6 Months		30	Osteophytic change +	Fair
3.	9236	Ramanujam	60 / M	28.01.2016	26.02.2016	4 Months		30	Narrowing of joint space	Fair
4.	9998	Valliammal	52 / F	30.01.2016	28.02.2016	3 Months		30	Normal	Good
5.	10048	Mari	35 / F	30.01.2016	28.02.2016	4 Months		30	Narrowing of joint space	Fair
6.	10910	Madasamy	60 / M	02.02.2016	02.03.2016	6 Months		30	Osteophytic change +	Fair
7.	11199	Sankarammal	55 / F	03.02.2016	03.03.2016	6 Months		30	Normal	Good
8.	11248	Mohammed Raja	42 / M	03.02.2016	03.03.2016	3 Months		30	Normal	Good
9.	11285	Kannan	42 / M	03.02.2016	03.03.2016	3 Months		30	Osteophytic change +	Fair
10.	11353	Sumathi	45 / F	03.02.2016	03.03.2016	7 Months		30	Normal	Good
11.	13655	Srinivasan	57 / M	10.02.2016	10.03.2016	4 Months		30	Normal	Good
12.	14130	Ponpandi	58 / M	11.02.2016	11.03.2016	6 Months		30	Normal	Good
13.	14357	Saradha	58 / F	12.02.2016	12.03.2016	3 Months		30	Normal	Good
14.	14763	Murugan	60 / M	13.02.2016	13.03.2016	3 Months		30	Normal	Good
15.	14837	Sri Ram	40 / M	13.02.2016	13.03.2016	2 Months		30	Normal	Good
16.	15316	Jeyamary	60 / F	15.02.2016	15.03.2016	2 Months		30	Normal	Good
17.	15387	Mala Antony	47 / F	15.02.2016	15.03.2016	2 Months		30	Normal	Good
18.	15388	Akila Nepolien	43 / F	15.02.2016	15.03.2016	3 Months		30	Normal	Good
19.	15700	Thangamani	60 / F	16.02.2016	16.03.2016	2 Months		30	Osteophytic change +	Fair
20.	17605	Abdul Kadhar	43 / M	22.02.2016	24.03.2016	3 Months		30	Normal	Good

TABLE-27 CASE SUMMARY
OUT PATIENTS

Sl. No.	OP No.	Name	Age / Sex	RA Factors (IU / ml)	ECG
1.	8729	Indira	48 / F	16.5	Normal
2.	9171	Boominathan	60 / M	12.2	Normal
3.	9236	Ramanujam	60 / M	17.3	Normal
4.	9998	Valliammal	52 / F	11.6	Normal
5.	10048	Mari	35 / F	10.1	Normal
6.	10910	Madasamy	60 / M	12.2	Normal
7.	11199	Sankarammal	55 / F	13.1	Normal
8.	11248	Mohammed Raja	42 / M	14.6	Normal
9.	11285	Kannan	42 / M	11.8	Normal
10.	11353	Sumathi	45 / F	18.2	Normal
11.	13655	Srinivasan	57 / M	13.8	Normal
12.	14130	Ponpandi	58 / M	12.8	Normal
13.	14357	Saradha	58 / F	16.4	Normal
14.	14763	Murugan	60 / M	17.5	Normal
15.	14837	Sri Ram	40 / M	17.8	Normal
16.	15316	Jeyamary	60 / F	12.3	Normal
17.	15387	Mala Antony	47 / F	14.2	Normal
18.	15388	Akila Nepolien	43 / F	16.2	Normal
19.	15700	Thangamani	60 / F	18.7	Normal
20.	17605	Abdul Kadhar	43 / M	19.2	Normal

Reference range:

Rheumatoid factor : Upto 20 IU/mL

TABLE-27 CASE SUMMARY
(b) IN PATIENTS

Sl. No.	IP No.	Name	Age / Sex	Treatment starting date	End of the treatment date	Duration of Illness	Treatment with Dose	No. of days treated		Total No. of days treated	Radiological findings	Result
								IP	Follow			
1.	218	Mani	60 / M	29.01.2016	27.02.2016	1 Month	All the cases were treated with Mukkirattai Chooranam 2 gm twice a day with hot water	30	-	30	Normal	Good
2.	288	Parvathi	60 / F	15.02.2016	16.03.2016	1 Year		31	-	31	Osteophytic changes +	Fair
3.	420	Sundari	50 / F	17.02.2016	18.03.2016	2 Months		31	-	31	Normal	Good
4.	483	Aavudaiyammal	49 / F	23.02.2016	04.03.2016	6 Months		11	19	30	Normal	Good
5.	535	Manikandan	59 / M	28.02.2016	28.03.2016	4 Months		30	-	30	Normal	Good
6.	783	Krishnamoorthy	60 / M	24.03.2016	23.04.2016	3 Months		31	-	31	Narrowing of joint space	Fair
7.	859	Mani	60 / M	29.03.2016	27.04.2016	6 Months		30	-	30	Normal	Good
8.	881	Velammal	60 / F	31.03.2016	22.04.2016	3 Months		23	7	30	Osteophytic changes +	Fair
9.	897	Subbammal	58 / F	02.04.2016	02.05.2016	6 Months		31	-	31	Normal	Good
10.	910	Mookammal	50 / F	03.04.2016	25.04.2016	5 Months		23	7	30	Normal	Good
11.	969	Latha	45 / F	08.04..2016	14.04.2016	7 Months		7	23	30	Normal	Good
12.	1100	Moorthi	60 / M	24.04.2016	23.05.2016	4 Months		30	-	30	Narrowing of joint space	Fair
13.	1116	Paramashivam	58 / M	26.04.2016	11.05.2016	1 Month		16	14	30	Normal	Good
14.	1127	Aarumugam	39 / F	27.04.2016	27.05.2016	6 Months		31	-	31	Normal	Good
15.	1140	Chettah	55 / M	28.04.2016	21.05.2016	8 Months		24	6	30	Normal	Good
16.	1149	Gomathi	50 / F	29.04.2016	21.05.2016	6 Months		23	7	30	Normal	Good
17.	1160	Parvathy	55 / F	02.05.2016	14.05.2016	4 Months		13	17	30	Normal	Good
18.	1180	Palpandi	56 / M	03.05.2016	01.06.2016	7 Months		30	-	30	Normal	Good
19.	1221	Ravindran	52 / M	07.05.2016	05.06.2016	7 Months		30	-	30	Normal	Good
20.	1231	Ramasamy	60 / M	09.05.2016	09.06.2016	1 Year		32	-	32	Osteophytic changes +	Fair

TABLE-27 CASE SUMMARY
IN PATIENTS

Sl. No.	IP No.	Name	Age / Sex	RA Factors (IU / ml)	ECG
1.	218	Mani	60 / M	16.4	Normal
2.	288	Parvathi	60 / F	17.5	Normal
3.	420	Sundari	50 / F	17.8	Normal
4.	483	Aavudaiyammal	49 / F	13.8	Normal
5.	535	Manikandan	59 / M	11.8	Normal
6.	783	Krishnamoorthy	60 / M	14.2	Normal
7.	859	Mani	60 / M	17.2	Normal
8.	881	Velammal	60 / F	13.1	Normal
9.	897	Subbammal	58 / F	10.8	Normal
10.	910	Mookammal	50 / F	11.2	Normal
11.	969	Latha	45 / F	18.6	Normal
12.	1100	Moorthi	60 / M	9.6	Normal
13.	1116	Paramashivam	58 / M	8.2	Normal
14.	1127	Aarumugam	39 / F	17.2	Normal
15.	1140	Chettah	55 / M	9.6	Normal
16.	1149	Gomathi	50 / F	18.2	Normal
17.	1160	Parvathy	55 / F	8.1	Normal
18.	1180	Palpandi	56 / M	12.4	Normal
19.	1221	Ravindran	52 / M	12.2	Normal
20.	1231	Ramasamy	60 / M	14.3	Normal

Reference range:

Rheumatoid factor : Upto 20 IU/mL

CHAPTER-VI

DISCUSSION

- Among 80 types of Vatha disease, Kumba Vatham is one of them, characterized by inflammation of joint, stiffness and paining shoulder joint.
- As the joint becomes progressively painful and stiffer, simple movement such as raising the arm becomes difficult. The inflammation occurs within the capsule itself.
- So Vatha disease has received more attention and good prognosis is the field of alternative medicine, specially in Siddha medicine. But they need scientific approach to study and prove it.
- All patients were subjected to preliminary investigations which include radiological, haematological and urine examination.
- The trial medicine **'Mukkirattai Chooranam'** was administered from the next day on wards. The course of treatment is 30 days twice a day with hot water.
- 20 Out and In patients were subjected on this, results can be discussed as follows,

1. Sex Distribution:

Among 20 Out patients, 50% were Male and 50% were Female.
Among 20 In patients, 50% were Male and 50% were Female.

2. Age Distribution:

Among 20 Out patients, 10% were in the age group of 31 – 40 years, 35% were in the age group of 41 – 50 years, 55% were in the age group of 51 – 60 years.

Among 20 In patients, 5% were in the age group of 31 – 40 years, 25% were in the age group of 41 – 50 years, 70% were in the age group of 51 – 60 years.

3. Kaalam:

In Siddha literature age of individual is fixed as 100 is to 3 Kaalam as,

- Kapha kaalam - First 33 years and 4 months.
- Pitha kaalam - Second 33 years and 4 months.
- Vadha kaalam - Third 33 years and 4 months.

Among 20 Out patients and In patients, 100% of the cases belongs to Pitha Kaalam.

4. Constitution of the body:

Among 20 Out patients, 100% were Thontha Thegi.

Among 20 In patients, 100% were Thontha Thegi.

5. Gunam:

Among 20 Out patients, 100% had Rajo Gunam.

Among 20 In patients, 100% had Rajo Gunam.

6. Religion Distribution:

Among 20 Out patients, 75% were Hindu, 10% were Muslim and 15% were Christian.

Among 20 In patients, 100% were Hindu.

7. Paruva Kaalam:

Most of cases were affected in Munpani Kaalam, Pinpani Kaalam and Elavenil Kaalam.

8. Thinai:

Among 20 Out patients, 100% cases were in Marutham.

Among 20 In patients, 90% cases were in Marutham and 10% cases were in Neithal.

9. Occupation:

Among 20 Out patients, 35% cases were Labours, 20% were House Wife, 15% were Clerk and 30% were Driver.

Among 20 In patients, 55% cases were Labours, 35% cases were House Wife, 5% cases were Clerk and 5% cases were Driver.

10. Food Habits:

Among 20 Out patients, 10% cases were Vegetarian and 90% cases were Non – Vegetarian.

Among 20 In patients, 15% cases were Vegetarian and 85% cases were Non – Vegetarian.

11. Socio – Economical status:

Among 20 Out patients, 30% cases were Middle income class and 70% cases were Low income class.

Among 20 In patients, 25% cases were Middle income class and 75% cases were Low income class.

12. Aetiological Factors:

Among 20 Out patients, 80% of the cases were due to Age factor and 20% of the cases were due to Occupational.

Among 20 In patients, 85% of the cases were due to Age factor and 15% of the cases were due to Occupational.

13. Mode of onset:

Among 20 Out patients, 100% of the cases were Chronic onset.

Among 20 In patients, 100% of the cases were Chronic onset.

14. Duration of illness:

Among 20 Out patients, Duration of Illness is 55% in 2 – 3 months, 20% in 3 – 4 months and Duration of Illness 25% in 6 – 7 months.

Among 20 In patients, Duration of Illness is 15% in 1-2 months, 10% in 3 – 4 months, 15% in 4 – 5 months, 5 % in 5 – 6 months, 40% in 6 – 7 months and 15% in above 8 months.

15. Clinical manifestation:

Among 20 Out patients, 100% of the cases had Painful shoulder, 80% of the cases had Stiffness, 40% of the cases had Tenderness, and 75% of the cases had difficulty in moving the shoulder joint.

Among 20 In patients, 100% of the cases had Painful shoulder, 90% of the cases had Stiffness, 55% of the cases had Tenderness, and 50% of the cases had difficulty in moving the shoulder joint.

16. Gnanendrium:

In both Out patients and In patients, 100% Mei was affected.

17. Kanmendrium:

In both Out patients and In patients, 100% Kai was affected.

18. Conditions of Mukkutram:

18 (a). Condition of Vatham:

Among 20 Out patients, 10% of the cases were affected in Piranan, 100% of the cases affected in Viyanan, 100% of the cases were affected in Samanan and 10% of the cases were affected in Dhevathathan.

Among 20 In patients, 10% of the cases were affected in Piranan, 100% of the cases affected in Viyanan, 100% of the cases were affected in Samanan and 10% of the cases were affected in Dhevathathan.

18 (b). Condition of Pitahm:

Among 20 Out patients, 100% of the cases were affected in sathagam and Among 20 In Patients, 100% of the cases were affected in sathagam.

18 (c). Condition of Kapham:

Among 20 Out patients, 100% of the cases were affected in santhigam and Among 20 In Patients, 100% of the cases were affected in santhigam.

19. Involvement of Udal Thathukkal:

Among 20 Out patients, 100% of the cases were affected in Saaram, 50% of the cases were affected in Kozhuppu and 100% of the cases were affected in Enbu.

Among 20 In patients, 100% of the cases were affected in Saaram, 50% of the cases were affected in Kozhuppu and 100% of the cases were affected in Enbu.

20. Conditions of Envagai Thervugal:**

Among 20 Out patients, 75% of the cases were affected sparisam, and 100% of the cases had thontha naadi.

Among 20 In patients, 75% of the cases were affected sparisam, and 100% of the cases had thontha naadi.

21. Naadi:

Among 20 Out patients, 80% of the cases were Vatha Pitham and 20% of the cases were Pitha Vatham.

Among 20 In patients, 100% of the cases were Vatha Pitham.

22. Neer kuri:

Among 20 Out patients, 30% of the cases were affected in Niram and 20% cases of the cases were affected in Nurai.

Among 20 In patients, 35% of the cases were affected in Niram and 10% of the cases were affected in Nurai.

23. Nei kuri:

Among 20 Out patients and 20 In patients, 100% of the cases were vatham.

24. Assessment of outcome:

Before Treatment:

Pain score	OP	IP
0-19	60%	55%
20-29	25%	25%
30-39	15%	20%
40-48	0%	0%

High incidence of outcome is reported in the pain score range between 0-19.

After Treatment:

Pain score	OP	IP
0-19	10%	10%
20-29	15%	10%
30-39	10%	10%
40-48	65%	70%

High incidence of outcome is reported in the pain score range between 40-48.

Trial medicine:

All the 40 patients treated with the clinical trial medicine Mukkirattai Chooranam with hot water for 30 days the disease and treatment are based primarily on the derangement of Mukkutram, which again is based on the Pancha Bootham theory. Incidence of Kumbavatham and treatment are also based on these primary principles of Siddha medicine.

The bootham araises vatha kuttram in the body and so leads to degenerate and weakness of shoulder joints. Increased vatha kutram is brought to normal mainly by kaippu suvai and thuvarppu suvai.

a) Space + Air = Kaippu
b) Earth + Air = Thuvarppu

Thus, they decreases the vatha kutram. So, I conclude the trial drugs control the disease Kumbavatham and it comes under Ethirurai Maruthuvam.

25. Gradation of results:

Among In patients, 65% of cases were Improved, 20% of cases were Moderately improved and 15% of cases were Not improved.

Among Out patients, 70% of cases were Improved, 20% of cases were Moderately improved and 10% of cases were Not improved.

CHAPTER-VII

SUMMARY

The purpose of the study is to reduce the symptoms of Kumba Vatham (Periarthritis). This premilinary study of anti-vatha along with rejuventation therapy has been tried with trial drugs and regiments.

The clinical trial drug **MUKKIRATTI CHOORANAM** is given prepared as per Siddha literature. The duration of period is 30 days.

The clinical trial dose is **MUKKIRATTAI CHOORANAM** 2gms twice a day with hot water.

Total 40 patients of both sex 30 - 60 years with age group were selected based on inclusion and exclusion criteria.

Maximum incidence in age 30-60 years. Before treatment, routine blood and urine analysis were taken in all patients.

Siddha diagnostic methods like Udal thathukkal, Envagai Thervugal, Neer kuri and Nei kuri were documented.

The entire details of the patients were noted in the case sheet proforma.

FROM THE CLINICAL STUDY THE FOLLOWING DATA WERE OBSERVED:

Age:

- Most of the patients were affected in age of 30-60 years.

Sex:

- Commonly affected in both sex.

Occupation:

- Mostly affected in Labours, House wife and Drivers

Mukkutram:

- Vatham – Piranan, Samanan, Dheva thathan was affected.
- Pitham – Sathagam was affected.
- Kapham – Santhigam was affected.

Udal thathukkal:

- Saaram, Kozhuppu, Enbu was affected.

Naadi:

- Vathapitha Naadi was commonly affected.

Neer kuri:

- In most of the patients Vatham was affected.

RESULTS AFTER TREATMENT:

65% of Out patients and 70% of In patients showed good improvement, 20% of Out & In patients showed moderate improvement, 15% of Out patient and10% In patients showed poor improvement was observed.

In Bio-Chemical analysis, the trial medicine contains **amino acid, ferrous iron, starch, un saturated compounds.**

Pharmacological studies of Mukkirattai Chooranam showed potent analgesic and anti inflammatory effects in rats.

Clinically the drug was free from side effect.

CHAPTER-VIII

CONCLUSION

- Kumba Vatham (Periarthritis) is primarily, due to derangement of Vatham.
- **Mukkirattai Chooranam** predominating with Kaippu Suvai respectively neutralize the Vatham.
- Clinical pharmacological studies which showed very good analgesic and anti – inflammatory activity.
- The trial medicine do not produce any toxicity in clinical studies. So safe drug for prolong use to Kumba Vatham.
- In Bio-chemical analysis the trial medicine contains **amino acid, ferrous iron, starch, un saturated compounds.**
- No toxic effects were observed during the treatment and after the completion of treatment.
- The trial medicines was reduce the symptoms of Kumba Vatham. It is observed only by clinical and assessment outcome.
- The preparation of trial medicine was easy and very low cost.
- Therefore, this clinical trial medicine **Mukkiratti Chooranam** should be a positive remedy for Kumba Vatham (Periarthritis).

ANNEXURE-I

PREPARATION OF TRIAL DRUG

LITERATURE VIEW OF TRIAL DRUG

Drug	:	**Mukkirattai Chooranam**
Ref	:	Mooligai Gunapadam Mudhal Vagappu (Page No.780)
Ingredient	:	Mukkirattai leaf
Procedure	:	Purified dry drug is taken and powdered and then it is filtered using pure white cloth and kept in air tight container.
Dosage	:	2 gm b.i.d. after food
Adjuvant	:	Hot water
Duration	:	30 days
Indication	:	Vatha disease

TRIAL DRUG

MUKKIRATTAI:

Botanical name	:	*Boerhavia diffusa*
Family	:	NYCTAGINACEAE
வேறு பெயர்	:	புட்பகம், மூக்குரட்டை, இரத்தபுட்பிகா
சுவை	:	கைப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு
செய்கை	:	கோழையகற்றி (Expectorant) சிறுநீர்ப் பெருக்கி (Diuretic) மலமிளக்கி (Larative) குளிர்ச்சியுண்டாக்கி (Refrigerant) புழுக்கொல்லி (Anthelmintic) வாந்தியுண்டாக்கி (Emetic)
பொதுக்குணம்	:	சீத மகற்றுந் தினவடக்குங் காந்திதரும் வாத வினையை மடிக்குங்காண் - பேதி கொடுக்குமதை உண்டாக்காற் கோமளமே! பித்தம் அடுக்குமே மூக்குரட்டையாய் **- அகத்தியர் குணவாகடம்**

பொருள் : ஐயம், நமைச்சல், **வளிப்பிணி** இவைகளை நீக்கும். அழகையும், கழிச்சலையும், அழல் பிணியையும் உண்டாக்கும்.

"மூக்கிரட்டையினிலை முறையுண வாத நோ
யாக்கையிற் பெட்டி யரவென் வடங்குமே"

- தேரன் வெண்பா

பொருள் : மூக்கிரட்டை இலையை உணவு முறையாகவேனும், மருத்துவ முறையாகவேனும் புசித்து வர உடலிலுள்ள **வளி நோய்கள்** ஒன்றுந் தலைகாட்டாது. அவை **பெட்டியிற் பாம்பு போல** அடங்கிவிடும்.

ANNEXURE-II

BIO-CHEMICAL ANALYSIS OF MUKKIRATTAI CHOORANAM

Preparation of the extract:

5 gms of the drug was weighed accurately and placed in a 250ml clean beaker then 50ml of distilled water is added and dissolved well. Then it is boiled well for about 10 minutes. It is cooled and filtered in a 100ml volumetric flask and then it is made to 100ml with distilled water. This extract is taken for analysis.

QUALITATIVE ANALYSIS

Sl. No.	EXPERIMENT	OBSERVATION	INFERENCE
1.	**TEST FOR CALCIUM** 2ml of the above prepared extract is taken in a clean test tube. To this add 2ml of 4% Ammonium oxalate solution	No white precipitate is formed.	Absence of calcium
2.	**TEST FOR SULPHATE** 2ml of the extract is added to 5% Barium chloride solution.	No white precipitate is formed.	Absence of sulphate
3.	**TEST FOR CHLORIDE** The extract is treated with silver nitrate solution	No white precipitate is formed.	Absence of chloride
4.	**TEST FOR CARBONATE** The extract is treated with concentrated Hcl.	No brisk effervescence is formed.	Absence of carbonate
5.	**TEST FOR STARCH** The extract is added with weak iodine solution	Blue colour is formed	Indicates the **Presence** of starch
6.	**TEST FOR FERRIC IRON** The extract is acidified with Glacial acetic acid and potassium ferro cyanide.	No blue colour is formed	Absence of ferric iron
7.	**TEST FOR FERROUS IRON** The extract is treated with concentrated Nitric acid and Ammonium thiocyanate solution	Blood red colour is formed	Indicates the **presence** of ferrous iron
8.	**TEST FOR PHOSPHATE** The extract is treated with Ammonium Molybdate and concentrated nitric acid	No yellow precipitate is formed	Absence of phosphate
9.	**TEST FOR ALBUMIN** The extract is treated with Esbach's reagent	No yellow precipitate is formed	Absence of albumin

10.	**TEST FOR TANNIC ACID** The extract is treated with ferric chloride.	No blue black precipitate is formed	Absence of Tannic acid
11.	**TEST FOR UNSATURATION** Potassium permanganate solution is added to the extract	It gets decolourised	Indicates the **presence** of unsaturated compound
12.	**TEST FOR THE REDUCING SUGAR** 5ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 minutes and add 8-10 drops of the extract and again boil it for 2 minutes.	No colour change occurs	Absence of reducing sugar
13.	**TEST FOR AMINO ACID** One or two drops of the extract is placed on a filter paper and dried well. After drying, 1% Ninhydrin is sprayed over the same and dried it well.	Violet colour is formed	Indicates the **presence** amino acid
14.	**TEST FOR ZINC** The extract is treated with Potassium Ferrocyanide.	No white precipitate is formed	Absence of zinc

Inference:

- Indicates the **Presence** of **amino acid, ferrous iron, starch and un starched compound.**

ANNEXURE-III

ANALGESIC ACTIVITY OF MUKKIRATTAI CHOORANAM AGAINST ACETIC ACID INDUCED WRITHING REFLUX IN MICE

Analgesic activity of **Mukkirattai Chooranam** at a dose of 100 mg/kg and 200 mg/kg was evaluated by acetic acid induced writhing reflux in mice. Painful reactions in animals may be produced by the chemicals such as phenylquionolone, bradykinin etc. Like that, acetic acid pain reaction which is characterized as a writhing response. Construction of abdomen, turning of trunk (twist) and extension of hind legs are taken as reaction to chemically induced pain. Analgesics (both narcotic and non-narcotic) inhibit writhing response.

Requirements

Animal: Swiss albino mice (20 – 25g) either sex

Drugs and chemicals: Diclofenac sodium (standard),
Acetic acid (1%), Mukkirattai Chooranam

Method:

Treatment protocol:

Group-1: Treated as normal control received 10ml/kg of normal saline through orally

Group-2: Treated as standard control received 10mg/kg of diclofenac sodium through orally

Group-3: Treated as Test-I received 100mg/kg of Mukkirattai Chooranam with 2 ml of sterile water through orally

Group- 4: Treated as Test- II received 200mg/kg of Mukkirattai Chooranam with 2 ml of sterile water through orally

Both dose of Mukkirattai Chooranam were administered one hour prior to the acetic acid administration. Note the onset on writhing. Record the numbers of abdominal contractions, trunk twist and extension of hind limbs as well as the number of animals showing such response during a period of 10 minutes were noted.

Statistics:

Data are expressed as mean ± S E M; data analyzed by one way ANOVA followed by Dunnet's multiple range tests to determine the significance of the difference between the control group and rats treated with extracts.

* Values were considered significant at $P < 0.01$.

ANALGESIC ACTIVITY OF MUKKIRATTAI CHOORANAM AGAINST ACETIC ACID INDUCED WRITHING REFLUX IN MICE

Treatment	Dose (mg/kg)	No. of writhing	% reduction in reaction time
Group-I Normal saline	Inject 1%v/v acetic acid 1ml/100g of body weight	35.2±2.6	-
Group-II Standard	10mg/kg Diclofenac sodium through orally	7.5±0.7	68.70***
Group-III Mukkirattai Chooranam	100mg/kg administered through orally	10.96 ± 0.2	58.19***
Group-IV Mukkirattai Chooranam	200mg/kg administered through orally	10.4 ±0.5	67.35***

Values are expressed as mean ± S E M
Values are analysed by one way ANOVA followed by Dunnet's multiple range tests
*** Values were considered significant at $P < 0.001$.

Results:

The table values show that analgesic activity of Mukkirattai Chooranam at a dose of 100mg/kg and 200mg/kg by acetic acid induced writhing reflex. The result reveals that both doses of Mukkirattai Chooranam possess significant analgesic activity at $P < 0.001$.

ANTI-INFLAMMATORY ACTIVITY

ANTI-INFLAMMATORY ACTIVITY OF MUKKIRATTAI CHOORANAM AGAINST CARRAGEENAN INDUCED PAW EDEMA IN RATS

The anti-inflammatory activities of Mukkirattai Chooranam at a dose of 100mg/kg and 200mg/kg body weight were evaluated using Carrageenan induced paw edema method. The inflammation was readily produced in the form of edema with the help of the irritant such as carrageenan. Carrageenan is a sulphated polysaccharide obtained from sea weed (Rhodophyceae) and when injected cause the release of prostaglandins by the way it produces inflammation and edema.

Requirements:

Animal	:	Albino rat (180 – 200g)
Drugs and chemicals	:	Diclofenac sodium (standard), carrageenan (1%), Mukkirattai Chooranam Digital plethysmometer UGO Basile (Italy)

Method:

The animals were divided into 4 groups each having six animals

Treatment protocol:

Group-1: Treated as normal control received 10ml/kg of normal saline through orally

Group-2: Treated as standard control received 10mg/kg of diclofenac sodium through orally

Group-3: Treated as treatment control received 100mg/kg of Mukkirattai Chooranam with 2 ml of sterile water through orally

Group- 4: Treated as treatment control received 200mg/kg of Mukkirattai Chooranam with 2 ml of sterile water administered through orally

A freshly prepared suspension of carrageenan (1% w/v, 0.1ml) was injected to the plantar region of left hind paw of each rat. One group was kept as control and the animals of the other groups were pretreated with Mukkirattai Chooranam given through orally 60 min before the carrageenan treatment. The paw volumes of the test compounds, standard and control groups were measured at 60, 120, 180 minutes of

carrageenan treatment with the help of Digital plethysmometer UGO Basile (Italy). Mean increase in paw volume was measured and the percentage of inhibition was calculated.

% anti-inflammatory activity = (Vc – Vt/Vc) x 100

Where Vt is mean increase in paw volume in rats treated with test compounds

Vc is mean increase in paw volume in control group of rats

Statistics:

Data are expressed as mean ± S E M; data analysed by one way ANOVA followed by Dunnet's multiple range tests to determine the significance of the difference between the control group and rats treated with test compounds.

* Values were considered significant at $P < 0.01$.

ANTI-INFLAMMATORY ACTIVITY OF MUKKIRATTAI CHOORANAM AGAINST CARRAGEENAN INDUCED PAW EDEMA IN RATS

Treatment	Dose (mg/kg)	Paw volume(ml) as measured at 3 hour	Percentage inhibition of paw edema
Group-I Normal saline	5ml/kg orally	4.95 ± 0.76	
Group-II Standard	10mg/kg Diclofenac sodium through orally	1.48 ± 0.26	70.02**
Group-III Mukkirattai Chooranam	100mg/kg administered through orally	3.54 ± 0.02	50.25**
Group-IV Mukkirattai Chooranam	200mg/kg administered through orally	1.98 ± 0.95	59.91**

Values are expressed as mean ± S E M

Values are analyzed by one way ANOVA followed by Dunnet's multiple range tests, to determine the significance of the difference between the control group and rats treated with the test compounds.

** Values were considered significant at $P < 0.01$.

Results:

Mukkirattai Chooranam at a dose of 100 and 200mg/kg were tested for their anti-inflammatory activity by using carrageenan induced rat paw edema method and the results are tabulated in table. The results reveals that both doses of **Mukkirattai Chooranam** 100 and 200mg/kg possess significant anti-inflammatory activity when compared to control group at $p<0.01$.

ANNEXURE-IV

ACUTE TOXICITY STUDY

Acute oral toxicity refers to those adverse effects occurring following oral administration of a single dose of a substance or multiple doses given within 24 hours. Acute toxic class method (OECD guidelines 423, (2000) was followed to arrive at the maximum safety dose of the drug extracts. Three Wistar strain female albino rats (8-12 weeks old, 180-200g body weight) were used in each group. Single dose (2g/kg) of the Mukkirattai Chooranam was orally administered to overnight fasted (food but not water withheld) animals while control animals received the vehicle (0.3%w/v CMC). Animals were observed individually after dosing at least once during the first 4 hrs and daily thereafter, for a total of 14days. Body weights of the animals were recorded. The other observations include changes for skin, fur, eyes and mucous membranes, respiratory, circulatory and autonomic and central nervous system and somatomotor activity and behavior pattern. At the end of 14 days, all animals were subjected to gross necropsy.

Statistics:

Data are expressed as mean ± S E M; data analysed by one way ANOVA followed by Dunnet's multiple range tests to determine the significance of the difference between the control group and rats treated with test compounds.

* Values were considered significant at $P < 0.5$.

Results:

Acute toxicity study:

All of the rats fed with the food sample showed normal general behavior, respiratory pattern, cardiovascular signs, motor activities, reflexes and normal change in skin and fur.

TABLE-1

HEMATOLOGICAL VALUES OF MUKKIRATTAI CHOORANAM

IN THE ACUTE TOXICITY STUDY

S. No	Parameter	Control	Sample 2g/kg
1.	White blood cells ($x10^3$/µl)	9.36±0.54	8.91 ±1.26
2.	Hemoglobin (g/dl)	11.50±0.26	12.95 ± 0.98
3.	Mean corpuscular volume	60.45±2.3	58.90 ± 0.51
4.	Mea corpuscular hemoglobin conc. (g/dl)	34.56±0.86	34.51 ± 1.47
5.	Platelet ($x10^5$/µl)	5.60±0.52	4.95 ± 1.03
6.	Red blood cell ($x10^6$/µl)	3.87±0.24	2.98 ± 0.29

Values are expressed as Mean ± S E M
All groups were treated with oral dose of 2g/kg body weight
No significant different from normal control

TABLE-2

BLOOD CHEMICAL VALUES OF FOOD SAMPLE

IN THE ACUTE TOXICITY STUDY

S. No.	Parameter	Control	Sample 2g/kg
1	Glucose (mg/dl)	148.75±3.96	142.85 ± 2.19
2	BUN (mg/dl)	34.26±1.23	31.95 ± 0.21
3	Creatinine (mg/dl)	0.46±0.06	0.69 ± 0.14
4	Total protein (g/dl)	5.48±0.23	4.98 ±0.04
5	Albumin (g/dl)	3.49±0.62	2.98 ± 0.29
6	Total bilirubin (mg/dl)	0.26±0.02	0.38 ± 0.15
7	AST (u/l)	141.5±3.76	139.26 ± 0.29
8	ALT (u/l)	86.36±1.75	90.51 ± 0.12
9	ALP (u/l)	75.57±2.16	74.19 ± 0.38

Values are expressed as Mean ± S E M
All groups were treated with oral dose of 2g/kg body weight
No significant different from normal control

DISCUSSION AND CONCLUSION:

In acute toxicity study for 14 days, at a dose of 2g/kg of Mukkirattai Chooranam sample were chosen for the experiment. In the aspect of general behaviours, the rats treated with food sample at a single dose had no signs of behavior changes and toxic signs. The treated groups revealed no significant differences in body weight gain. The increase in body weight may have resulted from physiological changes in rats such as metabolism, food and water intake. However, the result from animal health monitoring in the entire period of 14days showed no sign of morbidity and diseases.

The albino Wistar rats were healthy as shown by the normal appearance of general behavior, respiratory pattern, cardiovascular signs, motor activities, reflexes and normal change in skin fur.

With regards to hematological values, most of values in treated groups were normal in comparison with the control group. Significantly, some values were different from those of the control group such as RBC, MCV, MCHC, and platelet. However, such values are within the normal ranges. These variations may have resulted from variation among animal groups (Feldman *et al.*, 2000) (Inala *et al.*, 2002). Therefore, these results suggest that the test drug did not cause hematological or immunological defects in rats.

Furthermore, blood chemical examination was performed in order to evaluate any toxic effects on liver. In this study, the levels of these blood chemical values were minor changes and remained within the normal range (Casley and King, 1980) (Levine, 1995) (Angkhasirisap *et al.*, 2002).

In conclusion, **Mukkirattai Chooranam** sample given orally to Wistar rats did not produce toxicities.

ANNEXURE-V

GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL,

PALAYAMKOTTAI, TIRUNELVELI DISTRICT

DEPARTMENT OF POTHU MARUTHUVAM

PRECLINICAL AND PHASE-II RANDOMIZED CLINICAL TRIAL ON KUMBA VATHAM (PERIARTHRITIS) WITH MUKKIRATTAI CHOORANAM

FORM-I

SCREENING AND SELECTION PROFORMA

1. Name_____ 2.Age_____ 3.Gender_____ 4.Phone no _____

5. OP No. _____ 6. IP No. _____ 7. Sl. No. ._____

INCLUSION CRITERIA:

- Age: 30 – 60 years.
- Sex: both male and female
- Patient having main symptoms of shoulder joint pain, radiating towards upper arm and forearm numbness, restricted movement of upper limb, loss of abduction and forwarded flexion followed by stiffness of the shoulder joints.
- Patient willing to sign the informed consent stating that he / she will consciously stick to the treatment during 30 days. But can opt out of the trial of his / her own.
- Willing for doing laboratory investigations and X-ray, imaging.
- Diabetes mellitus.

EXCLUSION CRITERIA

- Rheumatoid Arthritis.
- Cervical spondylosis.
- Ischemic heart diseases.
- Systemic hypertension.
- Pregnancy and lactation.
- Recent shoulders dislocation.

Date :

Station :

Signature of the Investigator:

Signature of the Lecturer: **Signature of the HOD:**

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PALAYAMKOTTAI, TIRUNELVELI DISTRICT
DEPARTMENT OF POTHU MARUTHUVAM
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KUMBA VATHAM (PERIARTHRITIS) WITH
MUKKIRATTAI CHOORANAM
FORM-IA
CASE SHEET PROFORMA

I.P. No.	:	NATIONALITY	:
BED No.	:	RELIGION	:
WARD No.	:	OCCUPATION	:
NAME	:	INCOME	:
AGE	:	D.O.A.	:
SEX	:	D.O.D.	:
PERMANENT ADDRESS:		DIAGNOSIS	:

MEDICAL OFFICER

COMPLAINTS AND DURATION:

HISTORY OF PRESENT ILLNESS:

HISTORY OF PAST ILLNESS:

PERSONAL HISTORY & HABITS:

1. Diet	:	Veg. / Non-Veg.
2. Marital status	:	Single / Married
3. Emotional stress	:	Yes / No
4. Addiction	:	Yes / No
If yes specify	:	
5. Bowel habit	:	Regular / Constipation
6. Sleep	:	Good / Disturbed / Insomnia
7. Presence of anxiety	:	Yes / No

FAMILY HISTORY:

1. Cardiovascular disease	:	Yes / No
2. Tuberculosis	:	Yes / No
3. Others	:	Yes / No

If yes specify:

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PRECLINICAL AND PHASE-II RANDOMIZED CLINICAL TRIAL ON KUMBA VATHAM (PERIARTHRITIS) WITH MUKKIRATTAI CHOORANAM

FORM-II & II-A

CLINICAL ASSESSMENT ON ENROLLMENT AND ON VISITS

1. S.No.: _____ 2. OP/IP No.: _____

3. Name: _____ 4. Gender: _____

5. Date of assessment: _____

GENERAL EXAMINATION:

1. Physical build	:	Normal / Obese
2. Height (cm)	:	
3. Weight (kg)	:	
4. Pulse rate	:	
5. Heart rate	:	
6. Respiratory rate	:	
7. Blood pressure	:	
8. Pallor	:	
9. Cyanosis	:	
10. Jaundice	:	
11. Clubbing	:	
12. Pedal oedema	:	
13. JVP	:	

SYSTEMIC EXAMINATION:

1. CVS	:	Normal / Abnormal

If abnormal,

2. CNS	:	Normal / Abnormal

If abnormal,

3. Respiratory system : Normal / Abnormal

If abnormal,

4. Digestive system : Normal / Abnormal

If abnormal,

5. Urogenital system : Normal / Abnormal

If abnormal,

CLINICAL EXAMINATION - SIDDHA ASPECTS:

UDAL NILAI:

1. Vatham ☐
2. Pitham ☐
3. Kapham ☐
4. Kalappu ☐

PARUVA KAALAM (SEASONS):

1. Kaar Kaalam (Aavani-Puratasi) Aug-Sept ☐
2. Koothir Kaalam (Iypasi - Karthigai) Oct - Nov ☐
3. Munpani Kaalam (Maargazhi-Thai) Dec-Jan ☐
4. Pinpani Kaalam (Masi-Panguni) Feb-Mar ☐
5. Elavenil Kaalam (Chithirai-Vaikasi)Apr-May ☐
6. Mudhuvenil Kaalam (Aani-Aadi) Jun-Jul ☐

NILAM (PLACES):

1. Kurinchi (Hills Areas) ☐
2. Mullai (Forest) ☐
3. Marudham (Fertile Areas) ☐
4. Neithal (Sea Areas) ☐
5. Paalai (Desert Areas) ☐

IYAMPORIGAL/PULANGAL:

1. Mei (Sensation) :
2. Vaai (Taste) :
3. Kann (Vision) :
4. Mooku (Smell) :
5. Sevi (Hearing) :

KANMENTHIRIYAM / KANMAVIDAYAM:

1. Kai (Koduthal) :
2. Kaal (Nadathal) :
3. Vaai (Pesal) :
4. Eruvai (Malam kazhithal) :
5. Karuvai (Aananthithal) :

UYIR THATHUKKAL:

VATHAM:

1. Pranan :
2. Abanan :
3. Viyanan :
4. Udhanan :
5. Samanan :
6. Naagan :
7. Koorman :
8. Kirukaran :
9. Devadathan :
10. Dhananjeyan :

PITHAM:

1. Anala pitham :
2. Ranjaga pitham :
3. Saadhaga pitham :
4. Aalosaga Pitham :
5. Prasaga Pitham :

KAPHAM:

1. Avalambagam :
2. Kledagam :
3. Podhagam :
4. Tharpagam :
5. Santhigam :

UDAL THATHUKKAL:

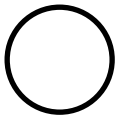
1. Saaram :
2. Senneer :
3. Oon :
4. Kozhuppu :
5. Enbu :
6. Moolai :
7. Sukkilam / Suronitham :

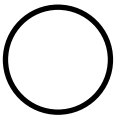
ENVAGAI THERVUGAL:

1. Naadi :
2. Sparisam :
3. Naa :
4. Niram :
5. Mozhi :
6. Vizhi
7. Malam :
   a) Niram :
   b) Nurai :
   c) Erugal :
   d) Elagal :
8. Moothiram :
   a. Neer kuri :
      1) Niram :
      2) Edai :
      3) Manam :
      4) Nurai :
      5) Enjal :
   b. Nei kuri :

NEI KURI EXAMINATION:

Before treatment: After treatment:





SIGNS AND SYMPTOMS:

	PRESENT	**ABSENT**
1. Pain in shoulder joints	☐	☐
2. Tenderness	☐	☐
3. Stiffness	☐	☐
4. Difficulty to move the joint	☐	☐
5. Radiating pain	☐	☐

CLINICAL EXAMINATION OF AFFECTED JOINT

INSPECTION:

	Present	***Absent***
Symmetry	☐	☐
Swelling	☐	☐
Joint deformity	☐	☐
If present, _____		
Muscle wasting	☐	☐

Range of motion: Affected / Not affected

PALPATION:

	Present	***Absent***
Symmetry	☐	☐
If present, _____		
Warmth	☐	☐
Tenderness	☐	☐
Crepitation	☐	☐

MOVEMENTS:

1. Restriction of movements : Full ☐ Partial ☐ NO ☐

2. Movements:

Movements	Pain		Muscular spasm		Range of movement	
	Yes	NO	Yes	NO	Normal	Reduced
i). Flexion						
ii). Extension						
iii). Abduction						
iv). Adduction						
v). Circumduction						
vi). Rotation						
vii). Lateral rotation (External)						
viii). Medical rotation (Internal)						
ix). Others						

PAIN ASSESMENT

OXFORD SHOULDER SCORE

Please answer the following 12 multiple choice questions.

1. How would you describe the worst pain you had from your shoulder?

- None
- Mild
- Moderate
- Severe
- Unbearable

7. Could you brush/comb your hair with the affected arm?

- Yes, easily
- With little difficulty
- With moderate difficulty
- With extreme difficulty
- No, impossible

2. Have you had any trouble dressing yourself because of your shoulder?

- No trouble at all
- Little trouble
- Moderate trouble
- Extreme difficulty
- Impossible to do

8. How would you describe the pain you usually had from your shoulder?

- None
- Very mild
- Mild
- Moderate
- Severe

3. Have you had any trouble getting in and out of a car or using public transport because of your shoulder?

- No trouble at all
- Very Little trouble
- Moderate trouble
- Extreme difficulty
- Impossible to do

9. Could you hand your clothes up in a wardrobe, using the affected arm? (Whichever you tend to use)

- Yes, easily
- With little difficulty
- With moderate difficulty
- With great difficulty
- No, impossible

4. Have you been able to do your daily activities all at the same time?

- Yes, easily
- With little difficulty
- With moderate difficulty
- With extreme difficulty
- No, impossible

10. Have you been able to wash and dry yourself under both arms?

- Yes, easily
- With little difficulty
- With moderate difficulty
- With extreme difficulty
- No, impossible

5. Could you do the household shopping on your own?	11. How much has pain from your shoulder interfered with your usual work (including housework)?
o Yes, easily o With little difficulty o With moderate difficulty o With extreme difficulty o No, impossible	o Not at all o A little bit o Moderately o Greatly o Totally

6. Could you carry a tray containing a plate of food across a room?	12. Have you been troubled by pain from your shoulder in bed at night?
o Yes, easily o With little difficulty o With moderate difficulty o With great difficulty o No, impossible	o No nights o Only 1 or 2 nights o Some nights o Most nights o Every night

The oxford Shoulder Score is: 48

Interpreting the Oxford Shoulder Score

Score 0 to 19	Indicate sever shoulder arthritis
Score 20 to 29	Indicate moderate to severe
Score 30 to 39	Indicate mild to moderate
Score 40 to 48	Indicate satisfactory joint function

Before treatment	After treatment

Date :

Station :

Signature of the Investigator:

Signature of the Lecturer :

Signature of the HOD

GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL,

PALAYAMKOTTAI, TIRUNELVELI DISTRICT

DEPARTMENT OF POTHU MARUTHUVAM

PRECLINICAL AND PHASE-II RANDOMIZED CLINICAL TRIAL ON KUMBA VATHAM (PERIARTHRITIS) WITH MUKKIRATTAI CHOORANAM

FORM-III

LABORTORY INVESTIGATIONS

1. S.No.: _____ 2. OP/IP No.: _____

3. Name: _____ 4. Gender: _____

5. Date of assessment: _____

INVESTIGATION	BEFORE TREATMENT	AFTER TREATMENT
TC		
DC		
Hb gms%		
ESR: 30 mints 60 mints		
Blood Sugar : Fasting Postprandial		
S.Cholesterol		
B. Urea		
B.Creatinine		
Uric acid		
RA factor		
Urine: Albumin Sugar Deposit		

SPECIFIC INVESTIGATION:

X-Ray of affected shoulder joint (AP and lateral view)

ECG for some selected cases (R/O Ischemic heart disease)

Medical Officer Signature:
Prof. / H.O.D

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PRECLINICAL AND PHASE-II RANDOMIZED CLINICAL TRIAL ON
KUMBA VATHAM (PERIARTHRITIS) WITH
MUKKIRATTAI CHOORANAM
FORM-IV

CONSENT FORM

I certify that I have disclosed all the details about the study in the terms readily understood by the patient.

Date :

Signature:

Name:

CONSENT BY THE PATIENT

I have been informed to my satisfaction by the attending physician for the purpose of the clinical trial and the nature of the drug treatment and follow up including the lab investigation to be performed to monitor and safeguard my body functions.

I am aware of my right to opt out of the trial at any time during the course of the trial without having to give reasons for doing so.

I, exercising my free power of choice, here by give my consent to be included as a subject in the clinical trial of **MUKKIRATTAI CHOORANAM** for the treatment of **KUMBAVATHAM**.

Date:

Signature: ……

Name: …….

Signature of Witness: …….

Name…….. ……

Relationship: …….

அரசு சித்த மருத்துவக் கல்லூரி மற்றும் மருத்துவமனை,
பாளையங்கோட்டை, திருநெல்வேலி மாவட்டம்.

பட்டமேற்படிப்பு பொது மருத்துவத்துறை

கும்பவாத நோய்க்கு மருந்தாக
மூக்கிரட்டைச் சூரணம்

பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்வு ஒப்புதல் படிவம்

ஆய்வாளரின் சான்றிதழ்

நான் இந்த ஆய்வு குறித்த அனைத்து விபரங்களையும் நோயாளிக்குப் புரியும் வகையில் எடுத்துரைத்தேன் என உறுதியளிக்கிறேன்.

கையொப்பம்

பெயர்:

தேதி :

இடம் :

நோயாளியின் ஒப்புதல்

என்னிடம் இந்த மருத்துவ ஆய்வின் காரணத்தையும், மருந்தின் தன்மை மற்றும் மருத்துவ வழிமுறையைப் பற்றியும் தொடர்ந்து எனது உடல் இயக்கத்தை கண்காணிக்கவும், அதனைப் பாதுகாக்கவும் பயன்படும் மருத்துவ ஆய்வுக் கூட பரிசோதனைகள் பற்றி திருப்தி அளிக்கும் வகையில் ஆய்வு மருத்துவரால் விளக்கிக் கூறப்பட்டது.

நான் இந்த மருத்துவ ஆய்வின்போது காரணம் எதுவும் கூறாமல் எப்பொழுது வேண்டுமானாலும் இந்த ஆய்விலிருந்து என்னை விடுவித்துக் கொள்ளும் உரிமையை தெரிந்திருக்கிறேன்.

நான் என்னுடைய சுதந்திரமாக தேர்வு செய்யும் உரிமையைக் கொண்டு கும்பவாத நோய்க்கு மருந்தாக மூக்கிரட்டைச் சூரணம் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கு என்னை உட்படுத்த ஒப்புதல் அளிக்கிறேன்.

கையொப்பம்

பெயர்:

தேதி :

இடம் :

சாட்சியின் கையொப்பம்

பெயர்:

GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL,

PALAYAMKOTTAI, TIRUNELVELI DISTRICT

DEPARTMENT OF POTHU MARUTHUVAM

PRECLINICAL AND PHASE-II RANDOMIZED CLINICAL TRIAL ON KUMBA VATHAM (PERIARTHRITIS) WITH MUKKIRATTAI CHOORANAM

FORM-IV A

WITHDRAWAL FORM

Name: _____ OPD/ IPD number: _____

Age : _____

Date of trial commencement: _____

Date of withdrawal from trial: _____

Reasons for withdrawal:

- Long absence at reporting : Yes ☐ No ☐
- Irregular treatment : Yes ☐ No ☐
- Shift of locality : Yes ☐ No ☐
- Increase in severity of symptoms : Yes ☐ No ☐
- Development of severe adverse drug reactions: Yes ☐ No ☐

Date :

Station :

Signature of Investigator **Signature of HOD**

Signature of Lecturer

GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL,
PALAYAMKOTTAI, TIRUNELVELI DISTRICT
DEPARTMENT OF POTHU MARUTHUVAM
PRECLINICAL AND PHASE-II RANDOMIZED CLINICAL TRIAL ON KUMBA VATHAM (PERIARTHRITIS) WITH MUKKIRATTAI CHOORANAM
FORM-IV B

PATIENT INFORMATION SHEET

- It is a inflammatory disorder.
- This disease is not contagious.
- It cause painful shoulder, stiffness, tenderness, difficulty in moving the shoulder joint.
- Many herbal and mineral siddha medicines are currently practiced by the siddha practitioners for this disease.
- The trial drug is prescribed only with evidence of Siddha literature.
- The trial drug is prepared at the Gunapadam Lab of Government Siddha Medical College & Hospital, Palayamkottai under the direct supervision of teaching faculties of Maruthuvam and Gunapadam Department.

Details of the trial drug:

Drug	:	**Mukkirattai Chooranam**
Dose	:	2 gms; twice a day.
Adjuvant	:	Hot water
Duration	:	30 days.

அரசினர் சித்த மருத்துவக் கல்லூரி மற்றும் மருத்துவமனை,

பாளையங்கோட்டை, திருநெல்வேலி மாவட்டம்.

பட்டமேற்படிப்பு பொது மருத்துவத்துறை

மூக்கிரட்டைச் சூரணத்தின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்வு தகவல் படிவம்

- கும்பவாத நோயானது மூட்டுக்களில் உள்ள தசை நார்களில் வீக்கத்தை ஏற்படுத்தக் கூடியது.
- இந்நோயானது தோள்பட்டை மூட்டுக்களில் வலி, விரைப்புத்தன்மை, மூட்டுக்களை செயல்படுத்துவதில் சிரமம் ஆகிய குறிகுணங்களை ஏற்படுத்தும்.
- சித்த மருத்துவத்தில் அதிக அளவு மூலிகைகள் மற்றும் தாதுப் பொருட்கள் இந்நோய்க்கு மருந்தாகப் பயன்படுகிறது.
- ஏற்கனவே உபயோகத்தில் உள்ள இது போன்ற மருந்து இதுவரை நோயாளிகளிடம் எந்தவித பக்க விளைவுகளை ஏற்படுத்தவில்லை.
- இந்த மருந்து சிறப்பாக கும்பவாத நோய்க்காக அங்கீகரிக்கப்பட்ட சித்த மருத்துவ நூலில் பெறப்பட்டுள்ளது.
- மேற்கண்ட மருந்தானது அரசினர் சித்த மருத்துவக் கல்லூரி மற்றும் மருத்துவமனை, பாளையங்கோட்டையில் உள்ள பட்டமேற்படிப்பு குணப்பாடம் மருந்து செய் ஆய்வகத்தில் செய்து முடிக்கப்பட்டது.
- இந்த ஆராய்ச்சி சம்பந்தமாக சில கேள்விகளைக் கேட்கவும், தேவையான ஆய்வக பரிசோதனைக்குத் தங்களை உட்படுத்தவும் உள்ளேன்.
- இது சம்பந்தமாக தங்களது அனைத்து விபரங்களும் ரகசியமாக வைக்கப்படும் என்று உறுதியளிக்கிறேன்.
- இந்த ஆராய்ச்சியின் போது உடலுக்கு வேறு பாதிப்பு ஏற்படும்பட்சத்தில் அரசினர் சித்த மருத்துவக் கல்லூரி மற்றும் மருத்துவமனை, பாளையங்கோட்டையில் தக்க சிகிச்சை அளிக்கப்படும்.
- இந்த ஆராய்ச்சியில் சேர்ந்த பிறகு உங்களுக்கு விருப்பம் இல்லையெனில் எப்பொழுது வேண்டுமானாலும் விலகி கொள்ளலாம்.
- மேலும் இந்த ஆராய்ச்சிக்கு IEC அனுமதிச் சான்று பெறப்பட்டுள்ளது.

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FORM–IV C

ADVERSE DRUG REACTION FORM

Name: _____ OPD/ IPD No: _____

Age: _____

Date of trial commencement: _____

Date of withdrawal from trial: _____

Description of adverse reaction:

_____

_____

Date :

Station :

Signature of Investigator **Signature of HOD**

Signature of Lecturer

GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL,

PALAYAMKOTTAI, TIRUNELVELI DISTRICT

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FORM-IV D

DISCHARGE CASE SHEET PROFORMA

I.P. No.	:	Occupation	:
Bed No.	:	Income	:
Ward No.	:	Nationality	:
Name	:	Religion	:
Age / Sex	:	Date of Admission	:
Address	:	Date of Discharge	:
Diagnosis	:		
No. of Days treated	:		

CLINICAL PROGNOSIS:

AT THE TIME OF ADMISSION	AT THE TIME OF DISCHARGE

Medical Officer Signature:
PROF / H.O.D

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FORM-IV E

DRUG COMPLIANCE FORM

Name : _____ Age/ Sex : _____ S. No : _____

OPD/ IPD No : _____ Date : _____ Bed No : _____

Name of The Drug : **MUKKIRATTAI CHOORANAM**

Drugs issued date :

Drugs returned date :

Days	**DATE**	**DRUG TAKEN TIME**	
		MORNING TIME	**EVENING TIME**
Day 1			
Day 2			
Day 3			
Day 4			
Day 5			
Day 6			
Day 7			
Day 8			
Day 9			
Day 10			
Day 11			
Day 12			
Day 13			
Day 14			
Day 15			

Day 16			
Day 17			
Day 18			
Day 19			
Day 20			
Day 21			
Day 22			
Day 23			
Day 24			
Day 25			
Day 26			
Day 27			
Day 28			
Day 29			
Day 30			

Date :

Station :

Signature of Investigator **Signature of HOD**

Signature of Lecturer

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